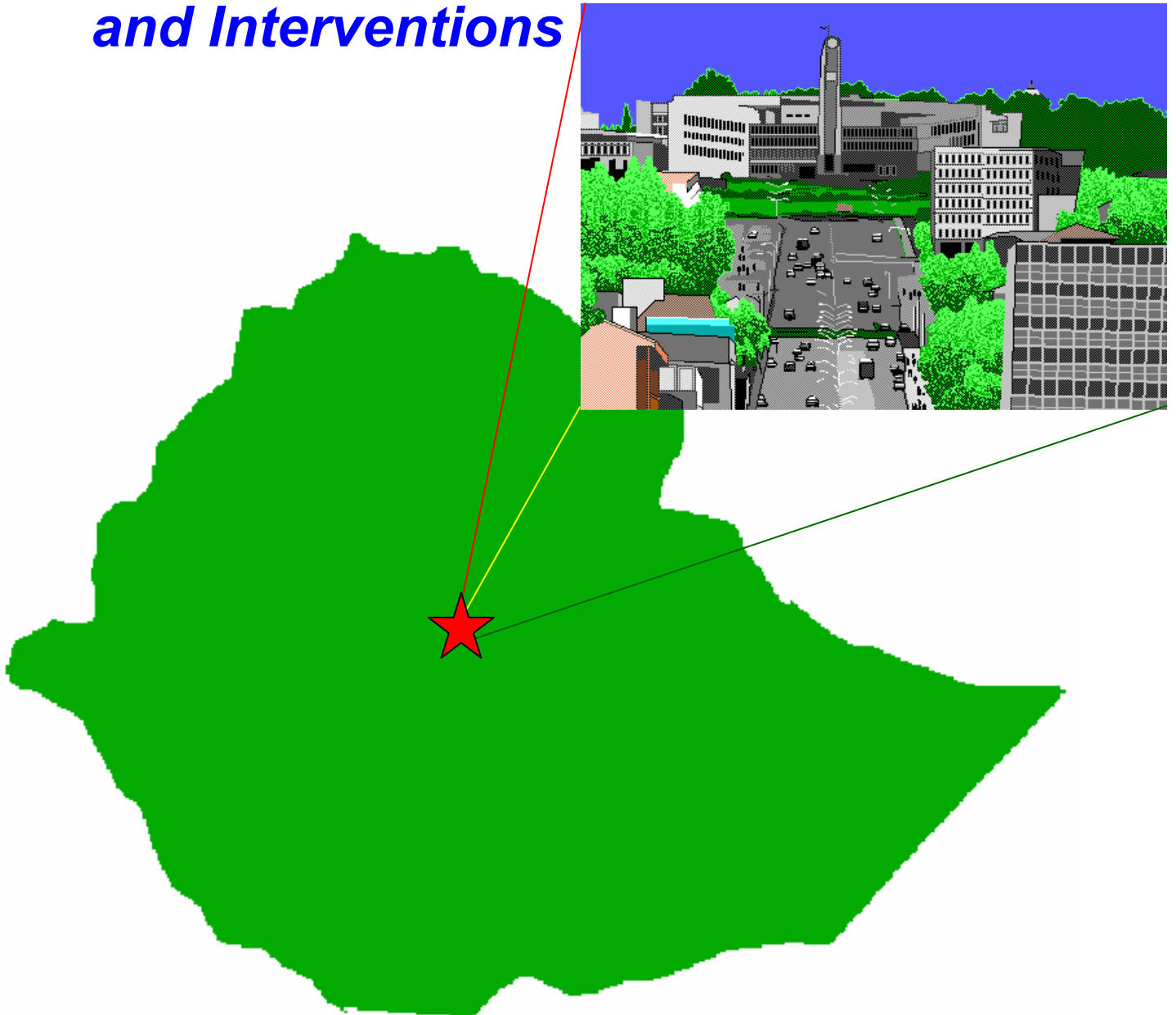


HIV/AIDS

in Addis Ababa

Background, Projections, Impacts and Interventions



City Administration Health Bureau

January 1999

**HIV/AIDS in Addis Ababa:
Background, Projections, Impacts and Interventions**

Addis Ababa City Administration Health Bureau

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Table of Contents

List of Abbreviations	iv
Foreword.....	v
Introduction.....	1
I. Background	4
What are HIV and AIDS?	5
Transmission Mechanisms.....	7
Incubation Period	9
The HIV/AIDS Pyramid	11
Sentinel Surveillance System.....	12
Current Estimates of HIV Prevalence.....	13
Age-Sex Distribution of HIV Infections.....	15
II. Projections	18
Projected HIV Prevalence.....	19
Number of Future HIV Infections and AIDS Cases	21
Cumulative AIDS Deaths	23
Annual Deaths to Persons Ages 15 to 49.....	24
III. The Social and Economic Impacts of AIDS	26
Orphans as a Result of AIDS	27
Population Size and Growth	29
Health Care	31
Mortality	33
HIV and Tuberculosis	35
Women.....	37
Sectoral Impacts.....	38
IV. Interventions to Control the Spread of AIDS	40
Interventions	41
The National Programme and Policy.....	47
The Role of Leaders.....	49
Strategic Planning and Priorities in Addis Ababa.....	51
V. Technical Note.....	53
VI. Estimating Adult HIV Prevalence in Addis Ababa.....	54
VII. Selected Sources	57

LIST OF ABBREVIATIONS

AAAANG	Addis Ababa City Administration Anti-HIV/AIDS Networking Group
AIDS	Acquired Immune Deficiency Syndrome
AIM	AIDS Impact Model
ANC	Antenatal Care
AZT	Zidovdine
EHNRI	Ethiopian Health and Nutrition Research Institute
ENARP	Ethiopian-Netherlands AIDS Research Project
GPA/WHO	Global Programme on Aids/World Health Organisation
HAART	Highly Active Anti-Retroviral Therapy
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
MCT	Mother-to-Child Transmission
MOH	Ministry of Health
MTP-I	First Medium Term Plan
MTP-II	Second Medium Term Plan
NGO	Non Governmental Organization
PLHA	People Living with HIV/AIDS
STD	Sexually Transmitted Disease
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on AIDS

FOREWORD

I am pleased to introduce to you *HIV/AIDS in Addis Ababa: Background, Projections, Impacts and Interventions*. The Addis Ababa City Administration Health Bureau produced this briefing book, although much of it is based on earlier national analyses prepared in 1995-96 and 1998 by the Epidemiology and AIDS Department, Ministry of Health. The book uses readable language and colourful graphics to present a complex issue and provides very useful information on the status of the epidemic, its consequences and ways to slow the spread of the virus. At the same time, the book is not a final statement and the City Administration Health Bureau encourages and welcomes comments from people who read it so that future editions can be improved.

The HIV/AIDS epidemic is an extremely serious problem in Ethiopia. By some estimates, one of every 13 **adults** in the country is already infected with HIV, the virus that causes AIDS. Yet because Ethiopia is an expansive country with a large, predominantly rural population, the national figures disguise the fact that the epidemic is much more serious in some regions than in others. That is the reason for this analysis. In Addis Ababa, approximately one of six **adults** is already infected, reflecting much higher infection rates than in many other parts of the country. An epidemic of this magnitude threatens the health and development of the entire region.

We face many serious health problems in Addis Ababa and sometimes the health needs of the population seem overwhelming in the face of limited resources. Yet AIDS is not just one more health challenge among many; rather, it is a killer disease of unprecedented proportions that will have a devastating impact on the region.

Still, the fundamental intention of this briefing book is not to be alarmist but to offer hope. About 83 percent of our adults, more than 4 of every 5, are not infected, and all of these uninfected men and women can take positive and active steps to protect themselves from HIV. The regional goal should be to adopt policies and measures to help them to do so. People who are already infected can help prevent further infections and can improve the quality of their own lives. People who have HIV but who have not yet developed AIDS can continue to live full and productive lives, often for many years. People living with HIV/AIDS should not be stigmatized or discriminated against; rather, they deserve our compassion, care and support. In the end, if institutions and individuals all do their part, I am convinced we can change the course and impact of the epidemic in Addis Ababa.

I wish to thank USAID for financial and technical support, and the Ministry of Health, AIDS Control Unit, the Central Statistical Authority, Office of Population and Housing Census Commission and the POLICY Project for technical assistance. I also wish to thank representatives from the following organizations and others for participating in the review process: Addis Ababa City Education Bureau; Addis Ababa City Women's Affairs Bureau; Addis Ababa Red Cross Society; Christian Relief and Development Association; Empress Zewoditu Memorial Hospital; Ethiopian Health and Nutrition Research Institute; Ethiopian Labor Union; Ethiopian Science and Technology Commission; Ethiopian-Netherlands AIDS Research Project; UNAIDS; UNICEF and WHO.

Dr. Eyob Kamil
Head, Addis Ababa City Administration Health Bureau
January 1999

INTRODUCTION

The HIV/AIDS epidemic has become a serious health and development problem in many countries around the world. The Joint United Nations Programme on AIDS (UNAIDS) estimates the number of HIV infections worldwide at more than 33 million by the end of 1998, of which 20.8 million were found in sub-Saharan Africa. Another 11.8 million persons have already died from the disease since the beginning of the epidemic, mostly in Africa. And about 350,000 infants now become infected each year, about 90 percent of whom are African children.¹ Overall, more than 90 percent of the new infections each year are found in the developing countries.

The Epidemiology and AIDS Department, Ministry of Health estimates that HIV adult prevalence – the percentage of persons over the age of 15 who carry the virus – is in the 6 to 9 percent range, with between 2 to 3 million infected persons in the country. The MOH analysis also shows that HIV adult prevalence is much higher in urban than in rural areas. Because of the large differentials between urban and rural rates of infection, and because of decentralization, officials have, at different times, called for regional analyses of the HIV/AIDS epidemic. That is the origin of this study.

Addis Ababa is, of course, the capital city of the Federal Democratic Republic of Ethiopia and the major urban center in the country. The Central Statistical Authority estimates the 1998 population of Addis Ababa at about 2.4 million persons, with a population growth rate near 2.9 percent per year. Much of the population growth in the city still stems from migration from the countryside and smaller urban areas. Unemployment is high and incomes are low. A recent report indicated that 60 percent of households earn less than Birr 300 per month. The city is also characterized by substandard housing conditions, high infant and maternal mortality rates, inadequate health services and poor sanitation. The presence of large numbers of commercial sex workers aggravates the spread of HIV and other sexually transmitted diseases.²

The virus that causes AIDS has already infected and is infecting many people in Addis Ababa. An estimated one of every six adults is currently infected, or around 17 percent of the entire adult population of Addis Ababa. This is a staggering level, and most of these people do not even know they are infected. Nearly 100 adults in Addis Ababa become newly infected every day. In addition to 286,000 HIV-infected adults, about 12,000 children are believed to be HIV positive. Since the beginning of the epidemic, more than 50,000 persons may have already developed AIDS, although not all cases have been officially recorded. No cure is available for AIDS, and the disease threatens the social and economic well-being of the entire region.

¹ UNAIDS. *Report on the Global HIV/AIDS Epidemic*, June 1998. To keep this briefing book as readable as possible, footnotes are kept to a minimum. Selected sources and a technical note can be found at the back of the document.

² Addis Ababa City Administration Health Bureau. *Addis Ababa City Administration Health Sector Development Programme – HDSP: A Five Year Plan, 1997/1998 – 2001/2002 (1990 – 1994 E.C.).* May 1998.

However tragic the HIV/AIDS epidemic is for Addis Ababa, there is still occasion for hope. HIV is not spread by casual contact or by mosquitoes or in the air or water. HIV is spread by certain types of human behavior; therefore, it can be controlled by changes in those behaviors. What is needed is continued involvement from all regional sectors to promote effective interventions. These include efforts to reduce high-risk sexual behaviors, treat and control the spread of other sexually transmitted diseases, maintain a safe blood supply and ensure safe use of needles. Additional efforts are needed to mitigate the problems of those already infected with HIV or otherwise affected by the epidemic. Today, about 83 percent of the adult population remain free of the infection and all of these people have the opportunity to protect themselves from HIV and AIDS.

This briefing book is intended to provide information about the HIV/AIDS epidemic in Addis Ababa. This material is also available as a slide show or interactive computer presentation. The information is provided in four sections:

Background:	What we know about HIV/AIDS in Addis Ababa today
Projections:	The number of people who might develop AIDS in the future
Impacts:	The social and economic impacts of AIDS
Interventions:	What needs to be done to prevent the spread of HIV/AIDS

Interested persons are welcome to use freely the information in this document. In addition, requests for presentations of this material or copies of this briefing book may be directed to the City Administration Health Bureau. The address is located on the last page.

Finally, the reader should note that all years referenced in the document are by the Gregorian Calendar.

I. BACKGROUND

What are HIV and AIDS?

Transmission Mechanisms

Incubation Period

The HIV/AIDS Pyramid

Sentinel Surveillance System

Current Estimates of HIV Prevalence

Age-Sex Distribution of HIV Infections

BACKGROUND

What are HIV and AIDS?

Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immune Deficiency Syndrome (AIDS). HIV destroys the biological ability of the human body to fight off opportunistic infections such as tuberculosis. A person can be infected with HIV for a long time without showing any symptoms. Nonetheless, during that period before a person develops symptoms, he or she can transmit the infection through sexual contact to other, uninfected people. An infected woman may also transmit the disease to her infant during pregnancy, delivery or breastfeeding. HIV may also be spread by transfusions of contaminated blood and by sharing needles used for injections and drug use. AIDS itself is defined in terms of how much deterioration of the immune system has taken place as indicated by the presence of opportunistic infections. Virtually all infected persons die from the disease.

By mid-1998, about 26,000 AIDS cases had been reported to the City Administration Health Bureau since the beginning of the epidemic in Addis Ababa around 1984. However, there is much more to the epidemic than the number of reported cases. We know that most AIDS cases are not reported. This can happen for several reasons:

- Some people never seek hospital care for AIDS or have poor access to health service units.
- Recording and reporting of AIDS cases is poor at all levels.
- People with AIDS do not die from the virus but from the opportunistic infections (such as tuberculosis) that invade the body with the breakdown of the immune system; consequently, many persons die from these invasive infections before they are ever diagnosed as having AIDS.
- Similarly, inadequate testing facilities and shortage of test kits mean that many HIV-infected persons do not know that they carry the virus.

The true number of cumulative AIDS cases in Addis Ababa is not known, but according to the projection model used in this study, the total was more than 50,000 towards the end of 1998.

AIDS stands for Acquired Immune Deficiency Syndrome. It is a disease caused by the Human Immunodeficiency Virus or HIV. It acts by weakening the immune system, making the body susceptible to and unable to recover from other diseases.

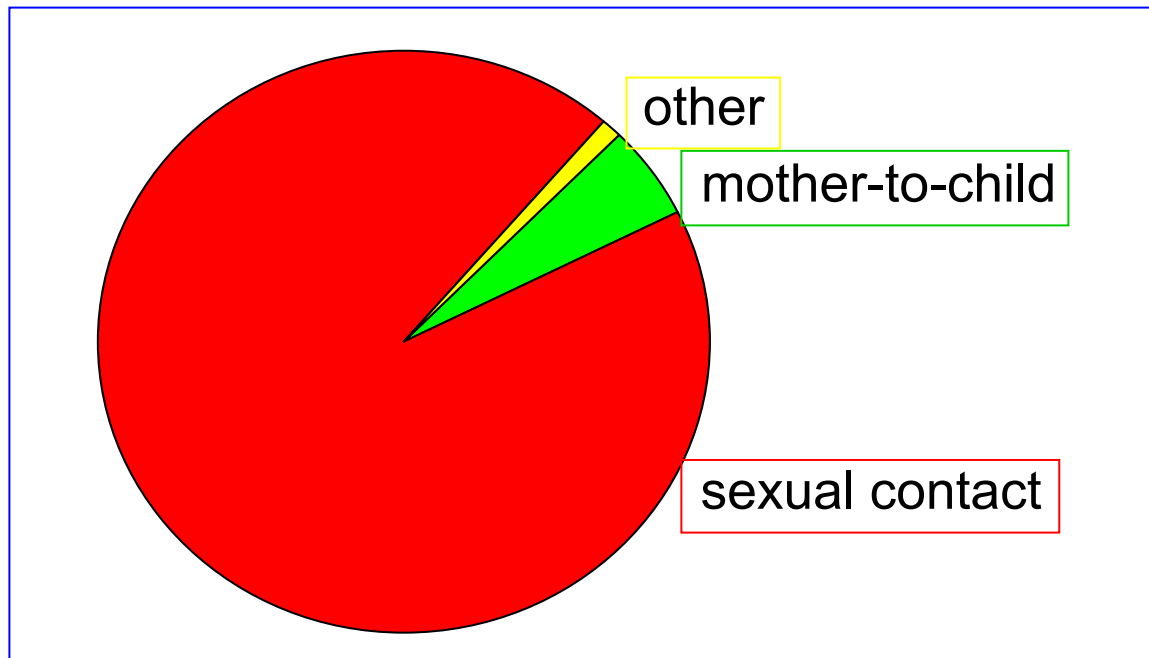
Transmission Mechanisms

In Addis Ababa, as in the rest of Ethiopia, two transmission mechanisms account for most new HIV infections: heterosexual contact and mother-to-child (MCT) transmission.

- ***Heterosexual Contact.*** The majority of infections are transmitted through heterosexual contact. Although the probability of transmitting HIV during intercourse can be quite low, a number of factors increase the risk of infection dramatically. One is the presence in either partner during unprotected sex of a sexually transmitted disease (STD), such as syphilis or gonorrhoea. These diseases form ulcers and sores that facilitate the transfer of the virus. A second contributing factor is a large number of sexual partners. A significant number of adults in the city do suffer from STDs and many have multiple sexual partners but do not use condoms to protect themselves. As a result, most new HIV infections are due to heterosexual contact. Programmes designed to slow the spread of HIV will need to focus on reducing transmission through unprotected sexual contact. In the longer term, strategies will also have to address the underlying social and economic factors contributing to the spread of the disease.
- ***Mother-to-Child Transmission.*** Many children are infected through mother-to-child transmission. They receive the infection from their mothers during pregnancy, at the time of birth or through breastmilk. About 30 - 40 percent of infants born to infected mothers will themselves be infected.¹ The other 60 - 70 percent will not become infected but are at risk of becoming orphans.

¹ See, for example, Y.J. Bryson. "Perinatal HIV-1 Transmission: Recent Advances and Therapeutic Interventions." *AIDS* 10 (Supplement 3, 1998), S33 – S42.

HIV Transmission Mechanisms

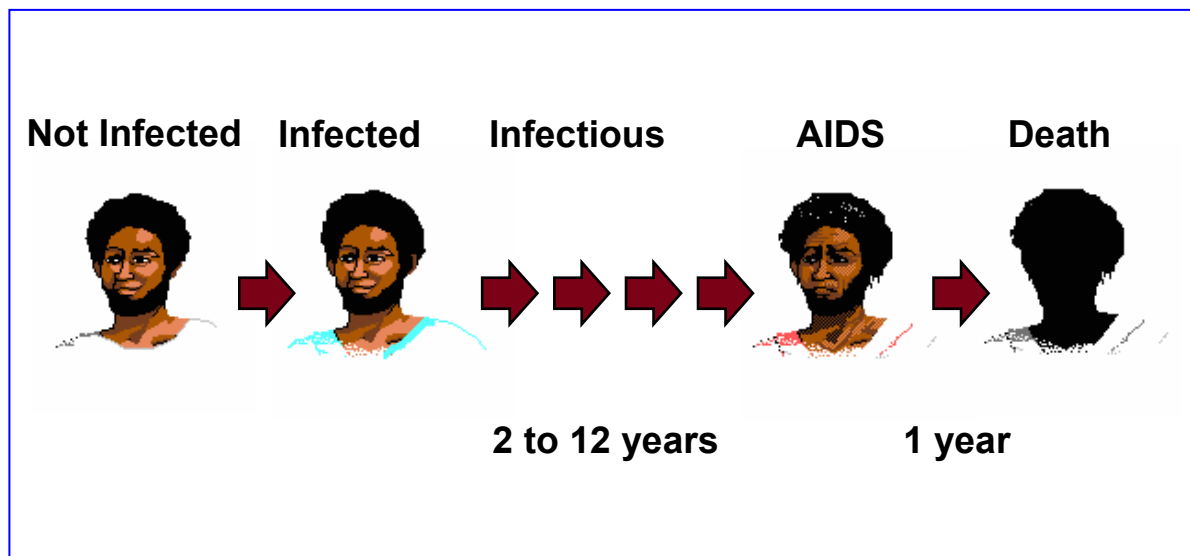


Other modes of transmission contribute less to the spread of the disease in Addis Ababa than sexual contact and mother-to-child transmission, but it is still important to guard against contaminated blood and reused needles that might transfer the virus. It is also especially important to avoid some traditional practices that involve cutting and the potential exposure of the blood to HIV.

Incubation Period

After transmission of HIV, a person does not develop AIDS immediately. There is often a lengthy period from infection with HIV to development of the disease AIDS that may last from 2 to 12 years or even longer. Some people may survive longer than 12 years with an HIV infection while others may develop AIDS within 2 or 3 years and die soon thereafter. The average time from infection with HIV to development of the disease AIDS is about 8 years.¹ That is, on average, a person does not develop AIDS until 8 years after becoming infected. For most of this period, the person may not have any symptoms and, therefore, may not even be aware that he or she is infected. This contributes to the spread of HIV, since the person can transmit the infection to others without knowing it. People with full AIDS, of course, remain infectious.

HIV Incubation Period (Adults)

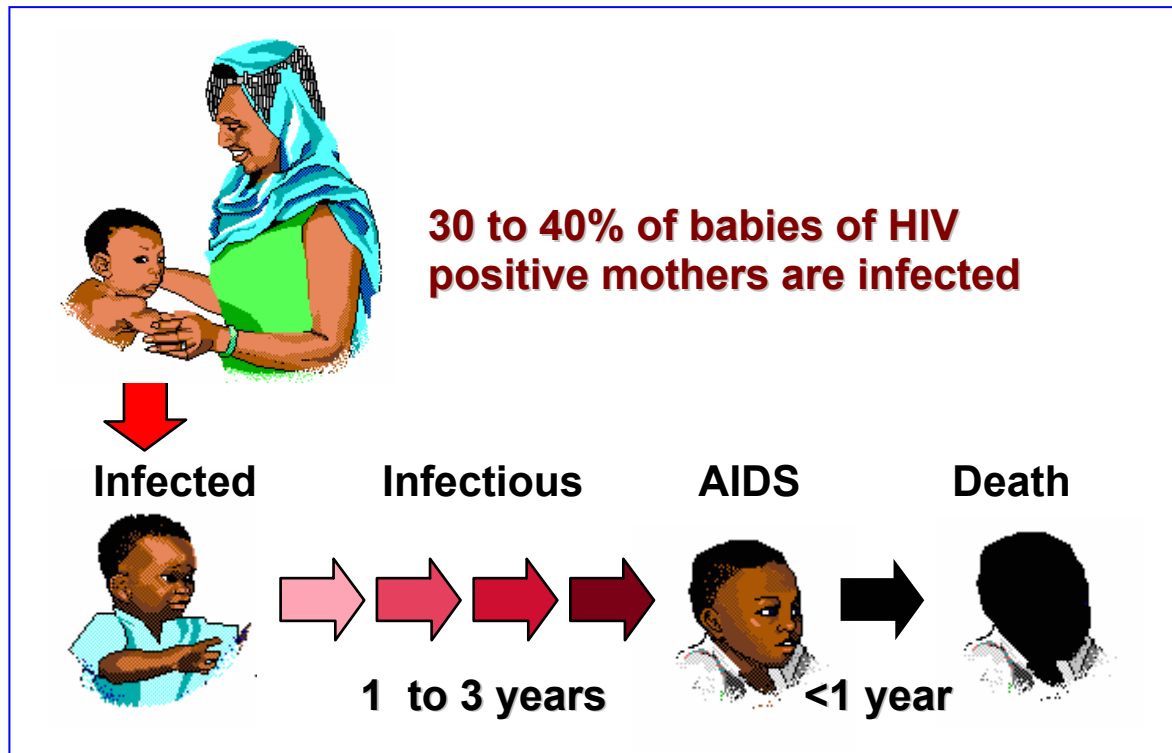


No one is quite sure why some infected individuals develop AIDS at a slower or faster pace than others. Countries where the overall health status of the population is poor may have shorter incubation periods, on average, than countries with better health conditions.

¹ See, for example, J.C. Hendriks et al. "Estimation of Progression of HIV Infection Among Intravenous Drug Users Using a Death-Included Markov Model." International Conference on AIDS, Abstract TH.C., 1996.

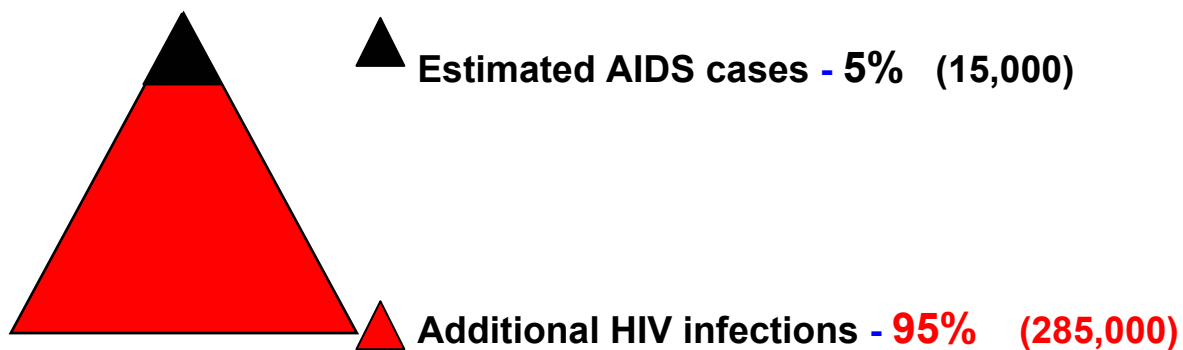
For children, the incubation period is much shorter because their immune systems are not yet fully developed. Most infants who are infected at birth develop AIDS within two years and die soon thereafter.

HIV Incubation Period (Infants)



The HIV/AIDS Pyramid

Because of the long and variable incubation period and because most people die quickly after they develop the disease, actual AIDS cases are only the tip of the epidemic. Many more people are infected with HIV but have not yet developed AIDS. By the end of 1997, an estimated 300,000 persons were infected with HIV in Addis Ababa, including about 12,000 children. However, only about 5 percent of infected persons had actually progressed from HIV to AIDS. Most did not know they were infected, and many had no symptoms at all. Almost all will develop AIDS and die within the next 10 years or so. There is no available cure for AIDS. (See section IV on treatments and vaccines.)

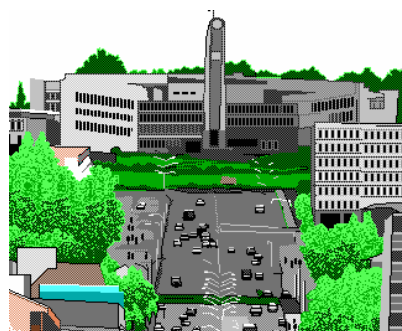


▲ *Actual AIDS cases are only the tip of the pyramid. Many more people are infected with HIV but have not yet developed AIDS.*

Sentinel Surveillance System

If most people do not know they are infected, how do public health officials monitor trends? Addis Ababa has a sentinel surveillance system that provides data for estimating the extent of HIV infection. In 1997, the Addis Ababa City Administration Health Bureau, in collaboration with the Ethiopian-Netherlands AIDS Research Project (ENARP), part of the Ethiopian Health and Nutrition Research Institute (EHNRI), operated four sentinel sites. Two of these, Kazanchis and Tekle-Haimanot, are in the inner city, while the other two, Gullele and Higher 23, are in outer city health centers. At these selected sites, health workers take blood samples from pregnant women visiting for the first time for care for the current pregnancy. These blood samples from antenatal care (ANC) patients are then tested anonymously (without reference to the name of the women to protect her right to privacy) for HIV infection and the results are used to understand the status of the epidemic.

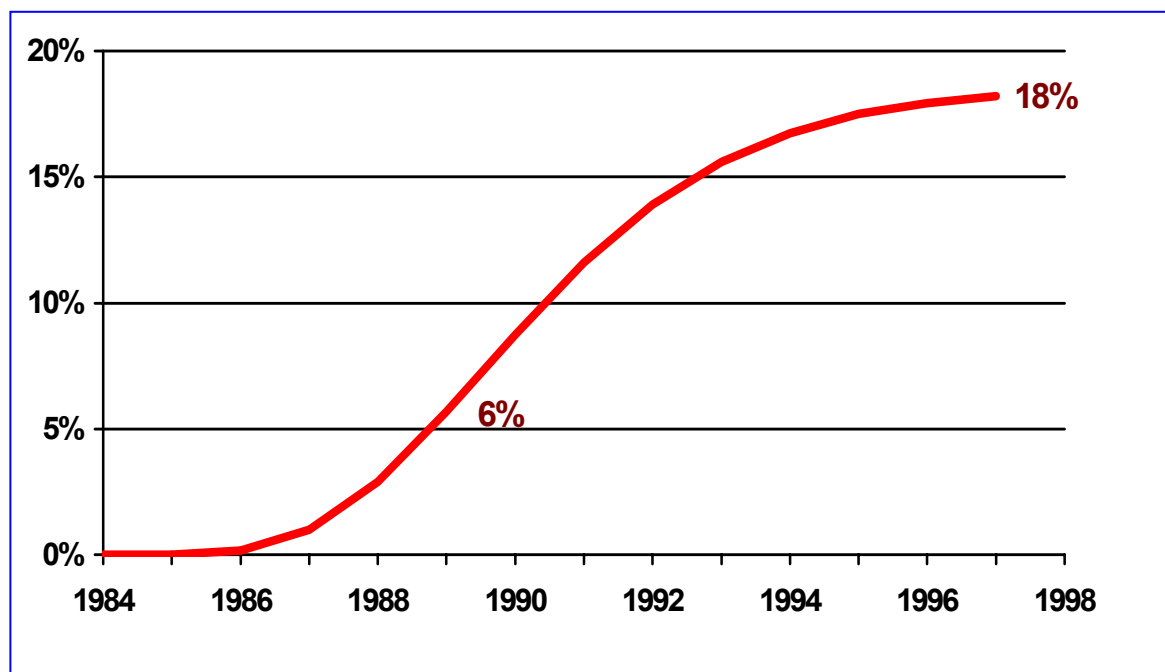
In 1997, the sentinel surveillance results for Addis Ababa showed an HIV infection rate of about 17.5 percent among pregnant women. The rates were about same in the inner city and outer city health centers, 17 percent and 18 percent respectively. As shown on the graph, HIV prevalence among pregnant women in Addis Ababa has risen from about 6 percent in 1989 to 17-18 percent in 1997. The sentinel system thus confirms the existence of high rates of HIV infection in Addis Ababa a rapidly expanding epidemic.



the

and

HIV Prevalence Among Pregnant Women in Addis Ababa 1984-1997



Current Estimates of HIV Prevalence

HIV positive blood samples from the Great Lakes region of Africa exist from around 1980. The epidemic moved into Ethiopia sometime later. The first Ethiopian blood samples found positive for HIV date from 1984. Medical staff diagnosed the first AIDS cases in Ethiopia in Addis Ababa hospitals in 1986. Once started, the HIV/AIDS epidemic spread quickly along the main trading roads connecting the cities of Ethiopia. A 1988 survey showed HIV prevalence to be 13 percent among truck drivers and 17 percent among prostitutes. Blood samples from pregnant women in Addis Ababa showed HIV prevalence already at 6 percent by 1989.

One recommended and commonly used measure to understand the extent of HIV in a population is adult prevalence, or the percentage of persons ages 15 and older who are HIV-infected. Some southern African countries now have adult HIV prevalence rates over 20 percent, while in most West African countries, adult HIV prevalence is still less than 5 percent. The Ministry of Health (MOH) estimated HIV adult prevalence for Ethiopia at between 6 and 9 percent for 1997.

This study has used sentinel surveillance data and other sources to evaluate the current situation. (See Section VI for a discussion on estimating adult HIV prevalence in Addis Ababa). Adult HIV prevalence in Addis Ababa is probably in the mid-teens and is estimated at 17 percent in this study. This means that more than one of six adults in the region is already infected with the virus and almost certain to die from AIDS at some point in the foreseeable future.

HIV Adult Prevalence in Addis Ababa



Age-Sex Distribution of HIV Infections

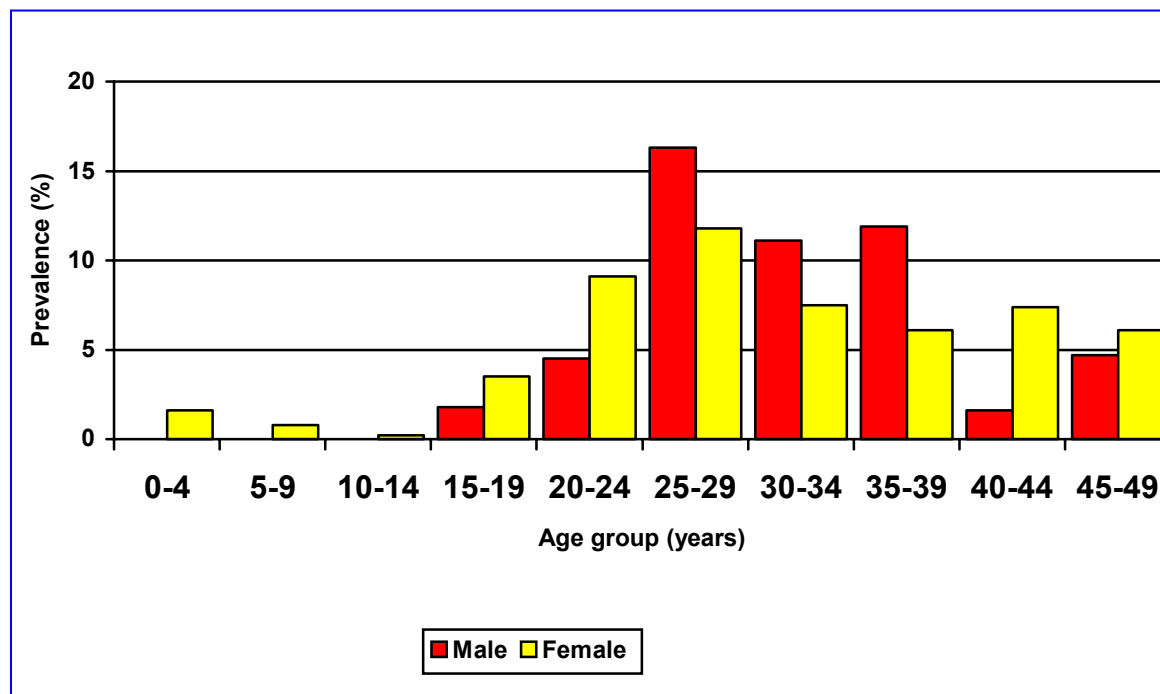
In 1997, the Ethiopia-Netherlands AIDS Research Project analysed blood samples taken for other purposes in 1994 for HIV infection.¹ This study can be used to obtain an idea of the age and sex distribution of HIV infection in Addis Ababa. This distribution is indicated on the bar chart that follows. The blue bars represent the percentage of HIV infections among males for each age group; the red bars represent HIV infections among females.

The bar chart illustrates several interesting facts.

- Most HIV infections are found among adults between the ages of 20 and 49. Since this is the most economically productive part of the population, illnesses and deaths in this age group constitute an important economic burden. Many productive years and much investment in education and training will be lost. These deaths also have important family consequences since most people in this age group are raising young children.
- The study shows about equal numbers of male and female infections. This is because most infection is acquired through sexual contact. This balance also suggests an epidemic in Addis Ababa that has existed for some time. The usual pattern for an African HIV/AIDS epidemic is for there to be more male infections during the initial stages of the epidemic but for these gender differences to disappear over time as prevalence rises.
- The peak ages for HIV infection are 20-29 for females and 25-39 for males.
- The number of females infected in the 15-19 age group is higher than for males in the same age group. This is due to earlier sexual activity by young females and the fact that they often have older partners, sometimes for economic reasons.
- The absence of male infections in the 0-4 age group is clearly an aberration in the study. Other studies show that about 30 – 40 percent of infected mothers transmit the virus to their children during gestation, at the time of birth, or while breastfeeding.
- The low number of infections in the 5-14 year old age group shows that HIV infection is not transmitted by mosquitoes or casual contact such as shaking hands or kissing.
- There are few infections among children between the ages of 5-14. This is the “Window of Hope.” If these children can be taught to protect themselves from HIV infection before they become sexually active, they can remain free of HIV for their entire lives. But action must be taken now, because rates of new infection are quite high once young people reach the 15-19 age group.

¹ Arnaud L. Fontanet et al. “Age- and Sex Specific HIV-1 Prevalence in the Urban Community Setting of Addis Ababa, Ethiopia.” *AIDS* (1998), pp. 318 – 319.

Age and Sex Distribution of HIV Infections 1994



II. PROJECTIONS

Projected HIV Prevalence

Number of Future HIV Infections and AIDS Cases

Cumulative AIDS Deaths

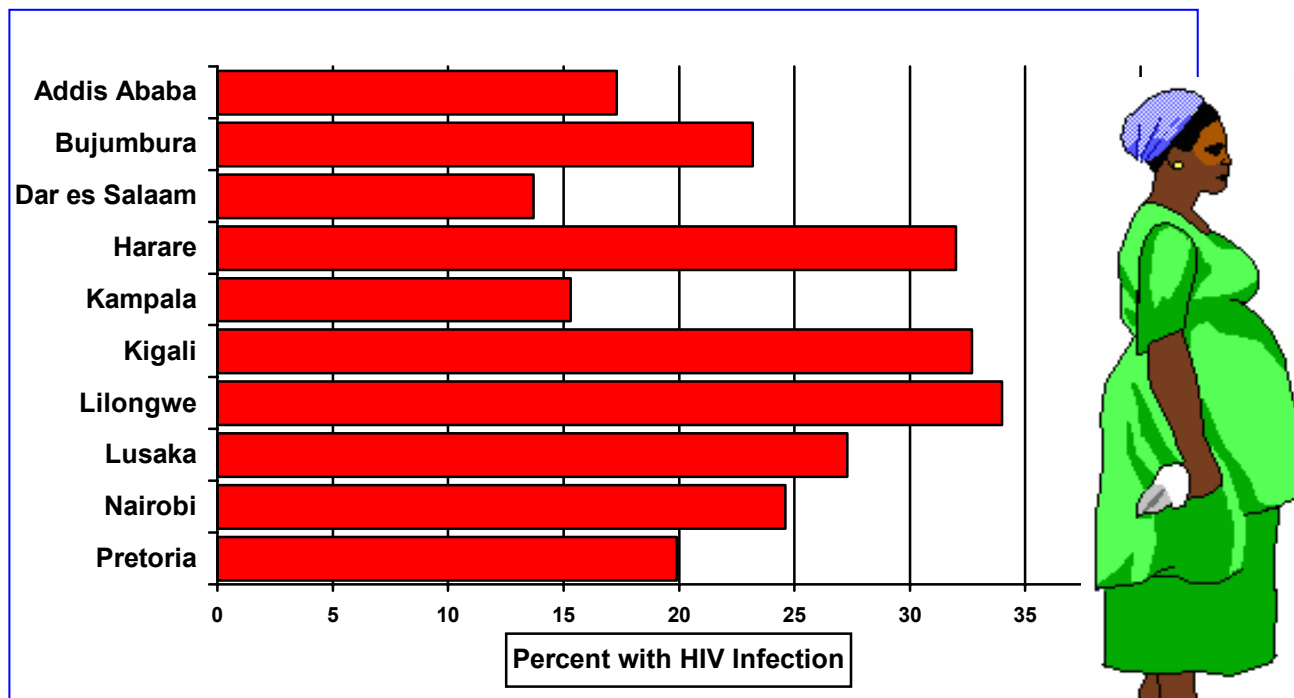
Annual Deaths to Persons Ages 15 to 49

Projected HIV Prevalence

To project the number of new infections in the future, it is necessary to make an assumption about how rapidly HIV will continue to spread. Will adult HIV prevalence continue to increase in the future? If it does, how high might it go in the absence of expanded AIDS control programmes and significant behavioral changes: 20 percent, 25 percent, 30 percent? Such high levels of infection are already found in some African urban areas.

The HIV/AIDS epidemic exploded quickly in Addis Ababa and adult prevalence increased rapidly in a relatively brief period of time. The rate of increase may have slowed somewhat although it is probably too early to say for certain. Prevalence in Addis Ababa is estimated at about 17.5 percent among pregnant women for 1997. The chart below, based on the U.S. Census Bureau database, shows that urban HIV adult prevalence is even higher in many other African countries. This chart shows HIV prevalence for pregnant women, which reflects, more or less, the situation in the general population. Higher prevalence in other countries may be due to an earlier start of the epidemic in those countries or to different behavior patterns or both. In any case, experience in other African cities suggests that HIV adult prevalence in Addis Ababa could surpass present levels.

HIV Prevalence Among Pregnant Women in Selected Capital Cities 1996-1997

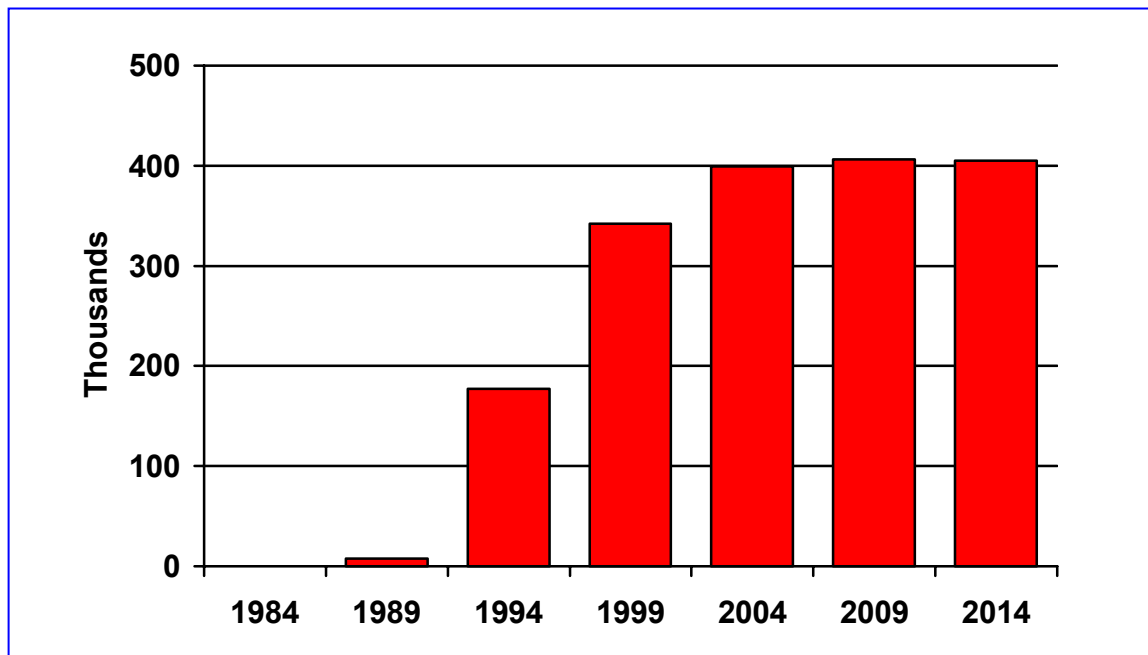


For purposes of this study, the assumption is that HIV prevalence in Addis Ababa will increase from about 17 percent of the adult population in 1997 to 20 percent by 2001 and then stabilise at that level. Evidence from other countries does seem to suggest that adult prevalence will stabilise at some level. In part, this happens because the high and rising number of deaths from AIDS eventually offsets the number of new infections. Twenty percent is probably a moderate estimate of the level at which prevalence might stabilise in Addis Ababa. Without effective interventions, the situation could become much worse, as evidenced by what has happened in other African cities.

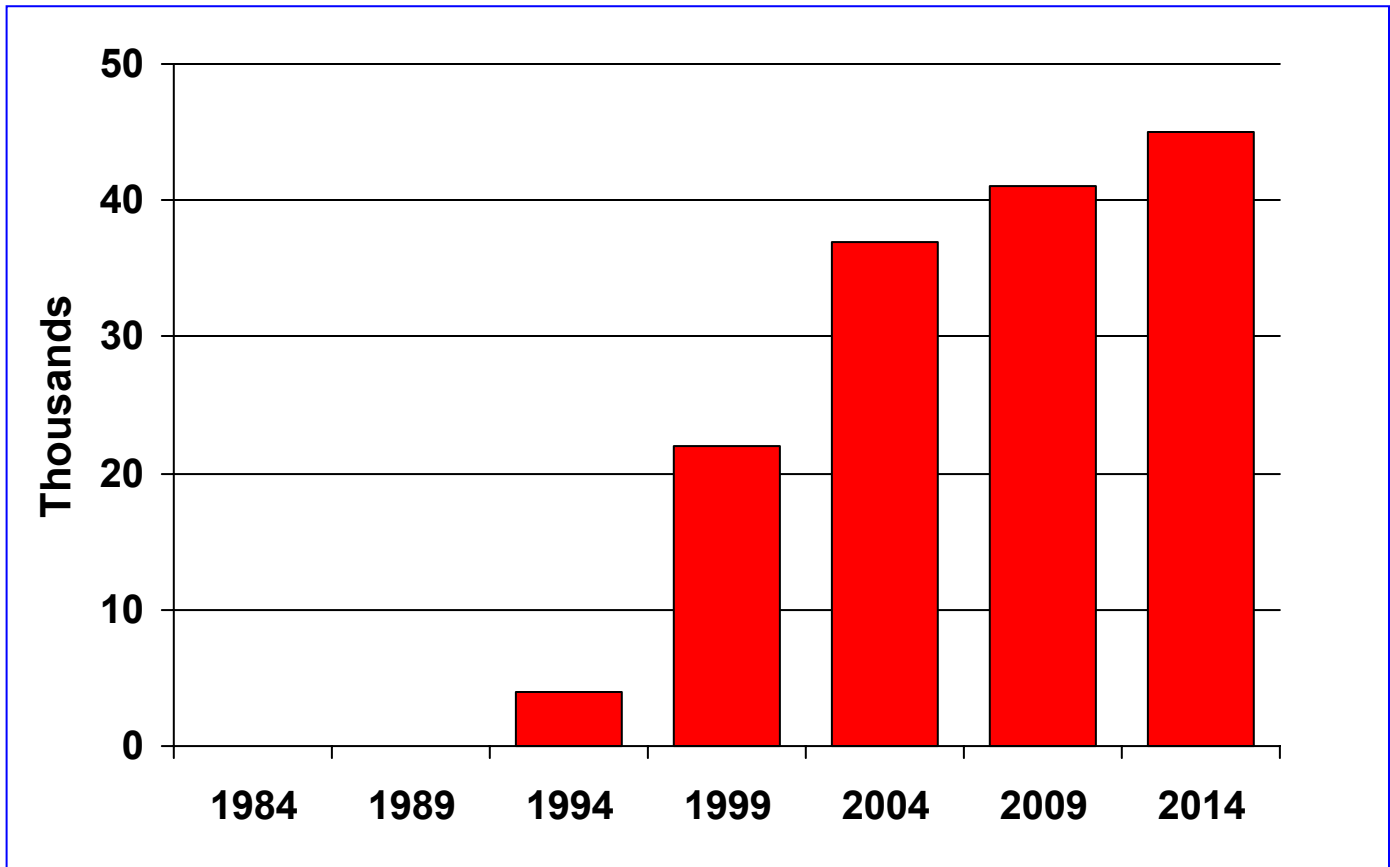
Number of Future HIV Infections and AIDS Cases

If HIV prevalence does increase to 20 percent by the year 2001, then the number of infected people in the population would increase to 340,000 in 1999 and to 455,000 in 2014. Although this projection assumes that HIV prevalence stays at 20 percent after 2001, this does not mean that the epidemic would be under control. Constant prevalence simply means that the number of new infections every year is equal to the number of people dying of AIDS each year. In this projection, between 40,000 and 60,000 people would still become newly infected in Addis Ababa each year even after prevalence levels off. Prevalence needs to decline dramatically to bring the epidemic under control.

Estimated and Projected Number of People Infected with HIV



Number of New AIDS Cases Each Year

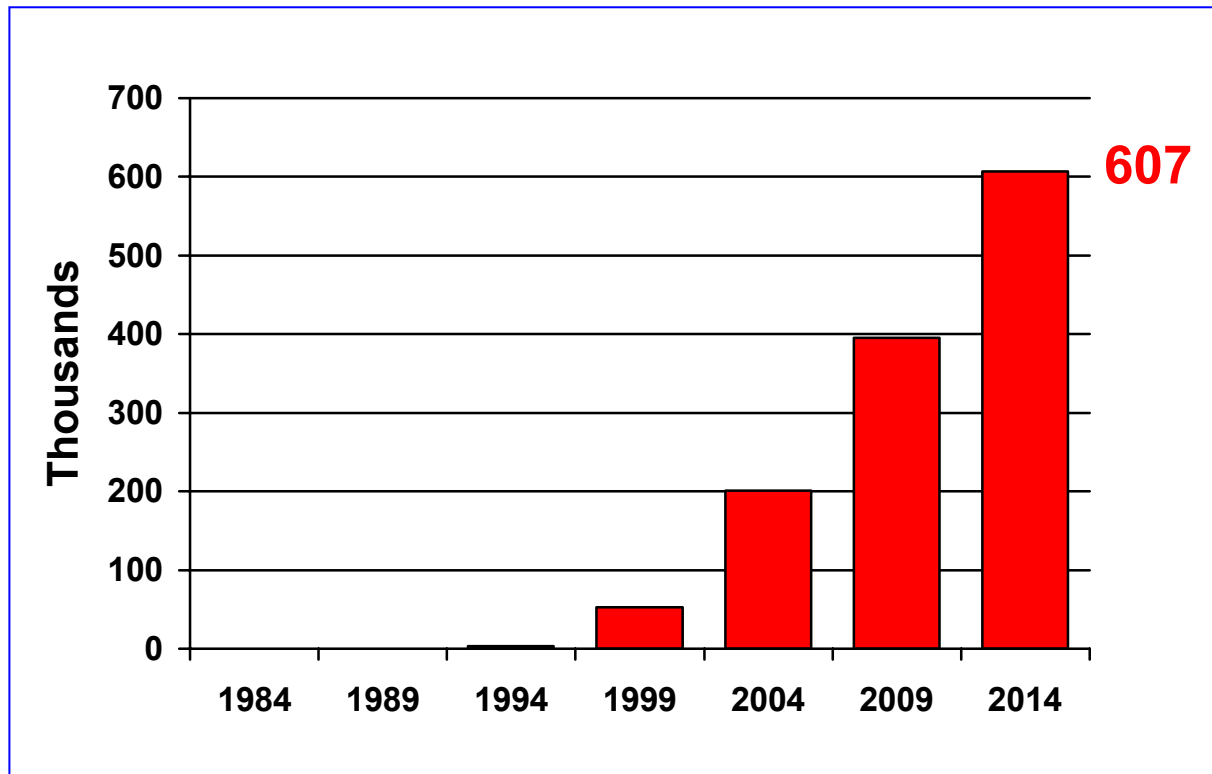


The number of new AIDS cases developing each year from among those persons living with HIV infection would rise from 22,000 in 1999 to 37,000 in 2004 and to 45,000 in 2014. Between 1999 and 2004, for example, about 85 persons would develop AIDS each and every day in Addis Ababa.

Cumulative AIDS Deaths

The death toll would be staggering. By 1999, the cumulative number of AIDS deaths from the beginning of the epidemic can be estimated at about 53,000. Over the ensuing 15 years, 1999 - 2014, an additional 554,000 persons in Addis Ababa are likely to die from the disease, which would result in a cumulative total of about 607,000 deaths by 2014.

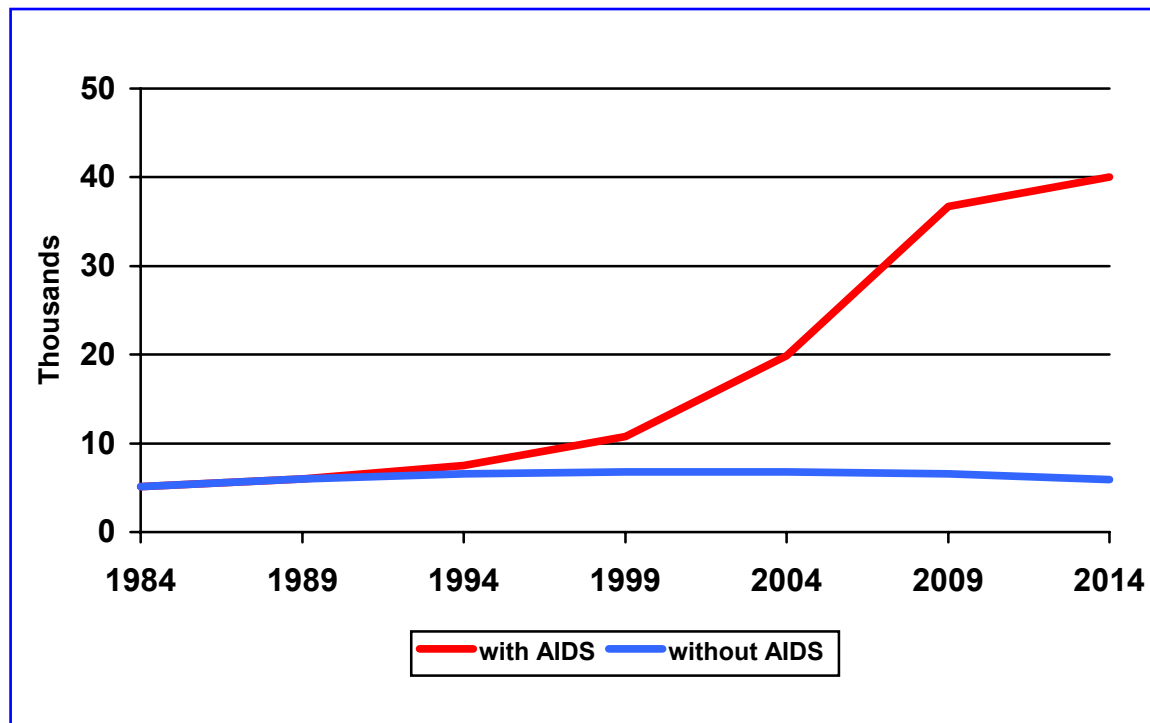
Cumulative AIDS Deaths



Annual Deaths to Persons Ages 15 to 49

The epidemic will increase the death rate at almost all ages. However, the impact will be especially severe among adults in the prime working ages. Without AIDS, and assuming a gradual decline in death rates from other causes, the annual number of deaths among adults aged 15-49 would change very little after 1999. However, AIDS will dramatically increase the number, with deaths in this age group reaching 11,000 per year by 1999, 37,000 per year by 2009 and 40,000 per annum by 2014. By 2009, more than 80 persons per day in the 15 to 49 age group would be dying from AIDS. This rapid increase in deaths in the productive age group could have serious consequences for the economic and social development of the country.

Annual Number of Deaths to Adults Ages 15 to 49



The loss of people in the most productive years of their lives will certainly affect overall economic output. Some sectors, particularly those that require trained and skilled workers, will be harder struck than others. The productivity of an enterprise will be affected even before an employee dies, due to lost workdays because of sickness. According to studies in other countries, the number of workdays lost to illness for a person with HIV/AIDS can range from as few as 30 to as many as 240 days in a year. Even healthy workers may need more time off from work to attend funerals of relatives and co-workers. AIDS can also have a significant impact on health care costs for firms that provide health care for their employees.

III. THE SOCIAL AND ECONOMIC IMPACTS OF AIDS

Orphans as a Result of AIDS

Population Size and Growth

Health Care

Mortality

HIV and Tuberculosis

Women

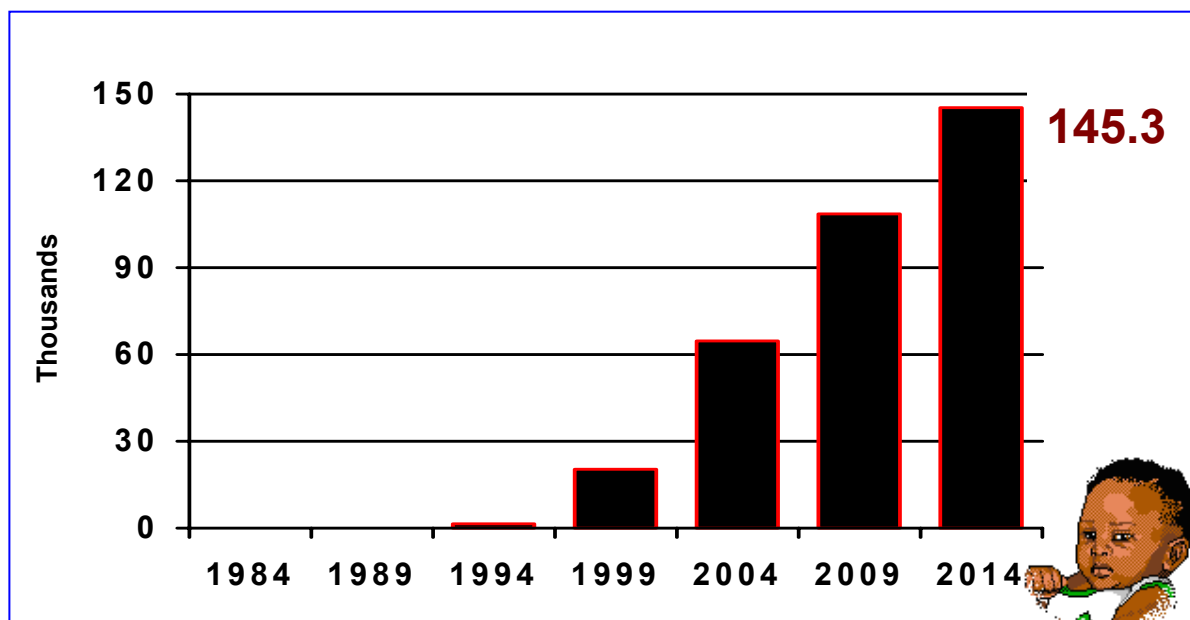
Sectoral Impacts

THE SOCIAL AND ECONOMIC IMPACTS OF AIDS

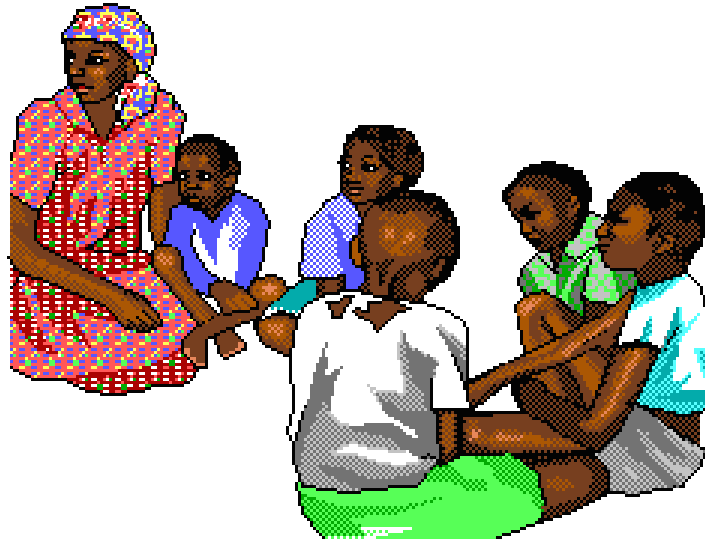
Orphans as a Result of AIDS

One serious consequence of AIDS deaths to men and women in their prime childrearing ages is an increase in the number of orphans. A maternal orphan is a child under age 15 whose mother has died from AIDS; a paternal orphan is a child under 15 whose father has died from the disease; a double orphan is a child under 15 whose parents have both died from AIDS. In reality, given the primacy of heterosexual transmission in spreading the virus, many children will lose both parents. The number of maternal and double orphans would rise quickly from 20,000 in 1999 to over 64,000 in 2004 and to more than 145,000 in 2014.

Maternal and Double Orphans as a Result of AIDS



There will be a tremendous strain on social systems to cope with such a large number of orphans and provide them with needed care and supervision. At the family level, there will be increased burden and stress for the extended family. This surge in the number of orphans is especially difficult in a major urban center where traditional family structures are not as strong as in the countryside.



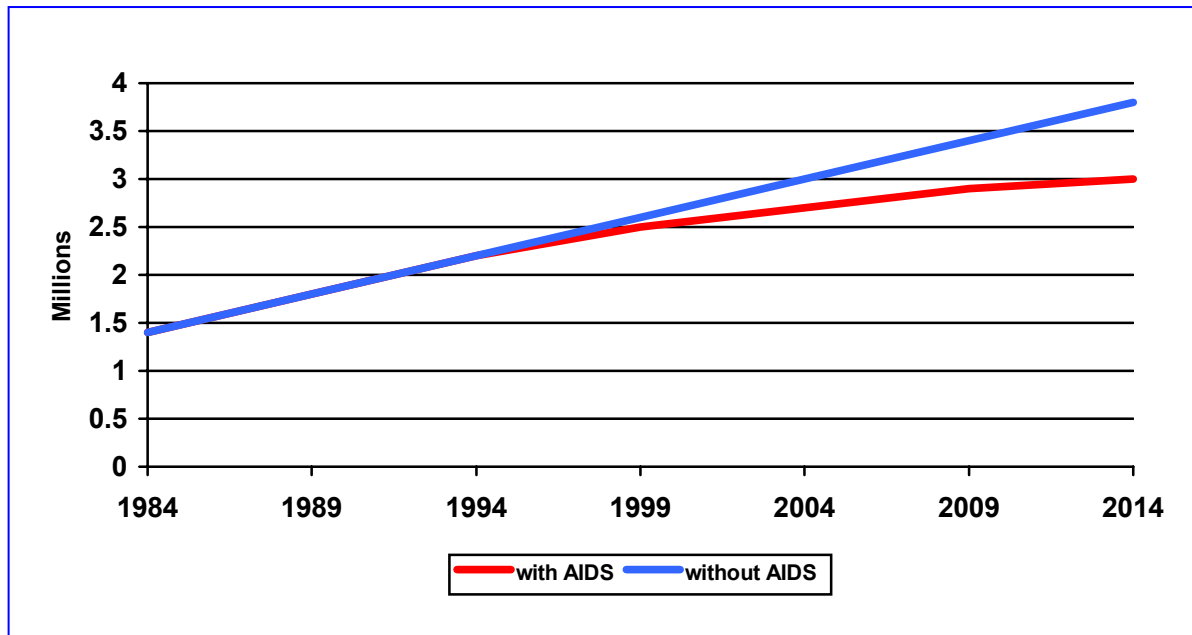
Many grandparents will be left to care for young children. Other families are already headed by adolescents and the number of these households is increasing. At the regional level, there will be an increased burden to provide services for these children, including orphanages, health care and school fees. Many orphans will never receive adequate health care and schooling, increasing the burden on society in future years. The number of street children will rise, and child labor will become more common as orphans look for ways to survive.

Population Size and Growth

The HIV/AIDS epidemic will have a significant impact on the population size and growth of Addis Ababa. The Central Statistical Authority estimates the 1995 population at 2.2 million persons. The population of Addis grows both from the natural increase of the population – the excess of births over deaths – and from migration into the area from other parts of the country. Many more people come into Addis each year than leave to go elsewhere.

Both the following projections use assumptions similar to those used in preliminary projections drafted by the Central Statistical Authority. Both assume that fertility actually rises modestly over time. (This could well happen as fertility in Addis is unusually low for an African urban center, probably due in part to the character of past migration). Both also use the same migration assumptions. What differs is that the first projection assumes no AIDS epidemic, while the second projection assumes the presence of HIV/AIDS.

Projected Population Growth



With no AIDS, the population of Addis Ababa would grow from about 2.2 million in 1995 to 2.9 million in 2004 and to more than 3.7 million in 2014. The population would still be growing by more than 2 percent per year in 2014 from both natural increase and migration. The rate of natural increase would be about 1.4 percent per year in 2014.

However, with AIDS causing increased deaths in the second projection, the population would grow less rapidly to 2.7 million in 2004 and to 3.0 million in 2014. By 2014, there would be 725,000 fewer people in the Addis Ababa population because of the AIDS epidemic. In 2014, the population would still be growing by 0.7 percent per year. However, all of that growth would be due to migration. The rate of natural increase would have turned negative as early as 2008.

Internal migration may vary for any number of reasons having nothing to do with the HIV/AIDS epidemic, and migration will be a fundamental determinant of the future size of Addis Ababa. Regardless, it is clear that the HIV/AIDS epidemic will have an important impact on the future size and rate of natural increase of the population.

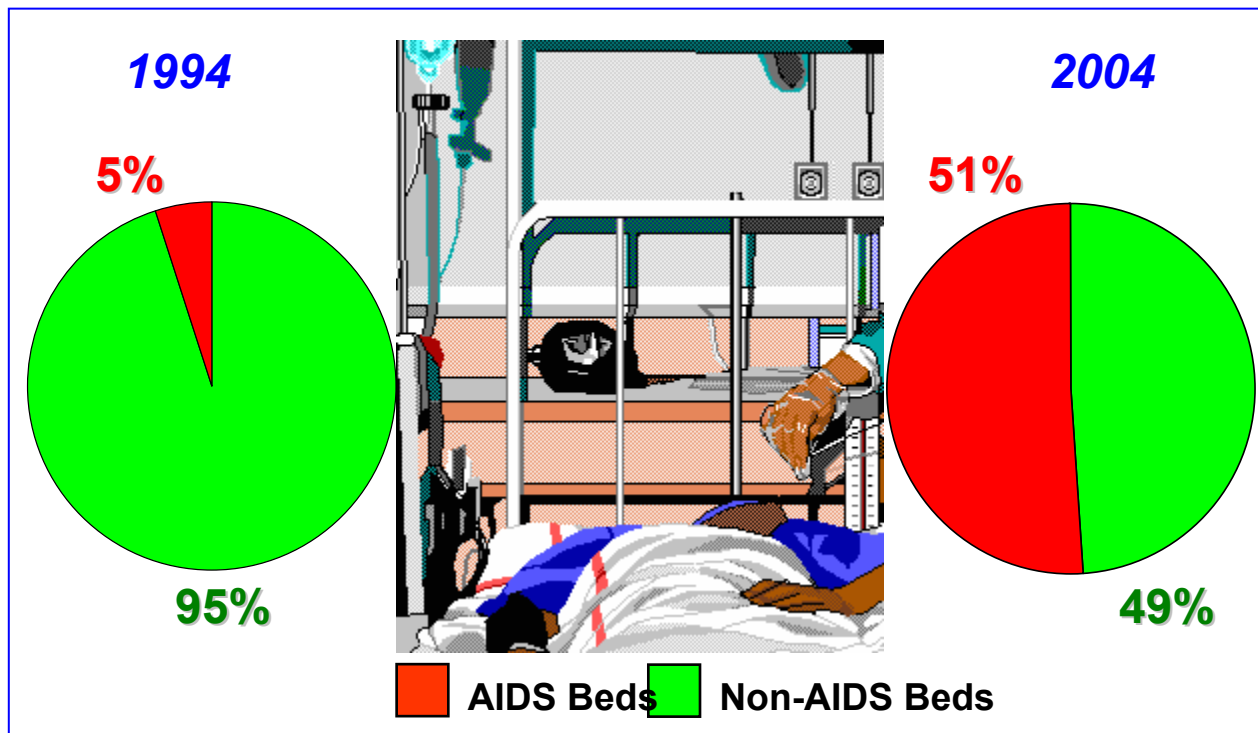
Health Care

The treatment of the opportunistic infections resulting from AIDS is expensive and will place considerable strains on the delivery of health services in Addis Ababa. For example, the demand on health services as a result of AIDS can be seen by looking at hospital bed occupancy.

The data available on these issues for the region are sparse, so these next two projections are intended to be illustrative. For those persons living with AIDS who need hospital care, the average length of stay is longer than for most other diseases. Estimates for different countries range from 15 to 80 days. The figure for Addis is unknown; in this analysis, the average length of stay for AIDS patients is assumed to be 40 days. Not all those with AIDS-induced opportunistic infections seek care in hospitals; here, it is assumed that 25 percent – one of four – look for treatment in these facilities.

In this case, the proportion of available beds that would be required to meet the needs of AIDS patients would rise from about 5 percent in 1994 to 51 percent in 2004. Not only will the HIV/AIDS epidemic cause great suffering and death by itself, but it will also reduce resources available to deal with other health problems.

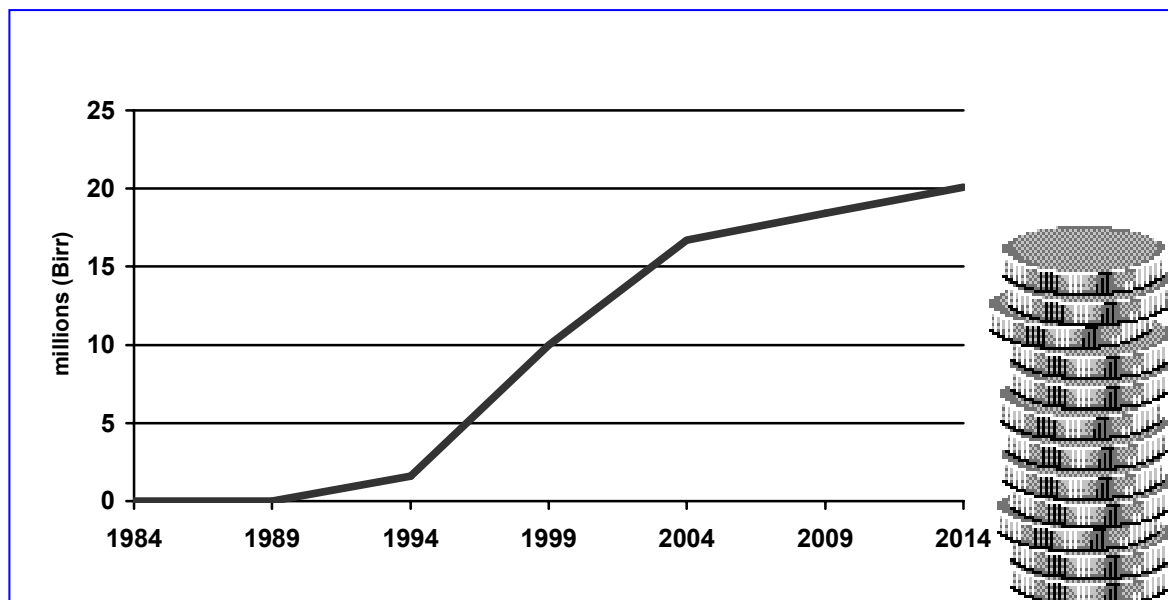
Illustrative Bed Occupancy Required for AIDS Patients



A recent study by the World Bank indicated that the average cost in sub-Saharan Africa to provide basic care to reduce suffering and to treat the less expensive opportunistic infections is about U.S.\$300 per patient year. If all opportunistic infections are treated, the annual cost rises to \$500.¹ One earlier study in Ethiopia estimated AIDS care costs at between \$85 and \$630 per day.

An average cost of \$200 per AIDS patient (about Birr 1800) may be usefully illustrative. This would mean that expenditures for AIDS patients would rise from Birr 1.6 million in 1994 to Birr 16.7 million in 2004 and to Birr 20.1 million in 2014. Increasing needs for funds to expend on AIDS care threaten to divert spending from other important health care needs, or to leave many AIDS patients with inadequate care. Recall that even in this projection only one out of four AIDS patients receive treatment. Were all AIDS patients to receive treatment, the annual cost would be Birr 80.4 million in 2014.

Illustrative Annual AIDS Care Expenditures



¹ World Bank. *Confronting AIDS: Public Priorities in a Global Epidemic*. (New York: Oxford University Press, 1997), pp. 174 – 178.

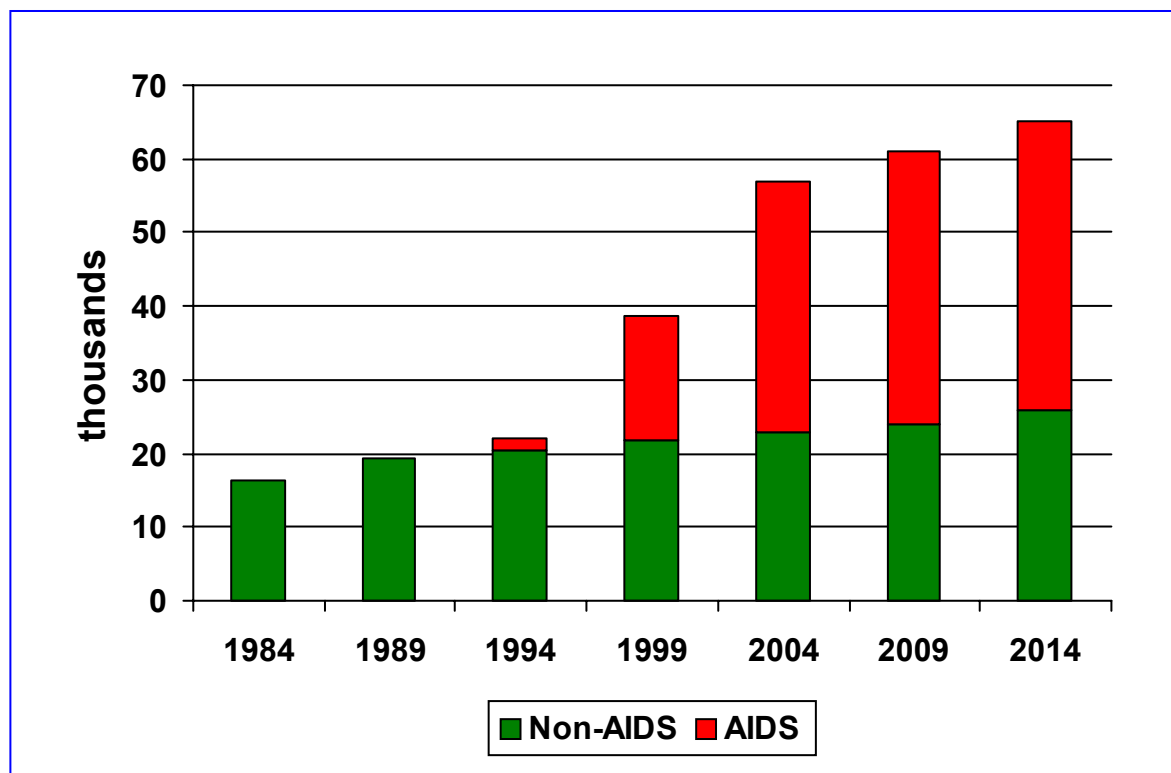
Mortality

Addis Ababa faces many serious health problems and sometimes the health needs of the population seem overwhelming in the face of limited resources. Why, then, should HIV/AIDS command more attention from health policymakers and planners than other competing health problems? Yet, in the end, HIV/AIDS is not just one more health challenge among many; rather it is a killer disease of unprecedented proportions that will have a devastating impact on the region.

Part of the problem in recognising the special character of HIV/AIDS is that the epidemic is often a hidden one. Recall that there is a lengthy incubation period, on average about eight years, from the time a person becomes HIV-infected to development of the disease AIDS. Most persons in Addis Ababa who have AIDS don't even know they are infected. Second, no one dies from AIDS directly; rather, infected persons succumb to the opportunistic infections, such as tuberculosis, that invade the body with the breakdown of the immune system. Consequently, many AIDS deaths are never identified as such.

The worst mortality from AIDS lies in the near future, not the past. In 1994, for example, AIDS accounted for about 8 percent of all deaths in Addis Ababa. In that situation, AIDS did not stand out as a particularly lethal epidemic. By 2004, however, AIDS will account for 60 percent – three of every five – deaths in the region. At that time, AIDS will be responsible for about 1.5 times the number of deaths in Addis as all other causes combined.

Deaths from AIDS and Other Causes

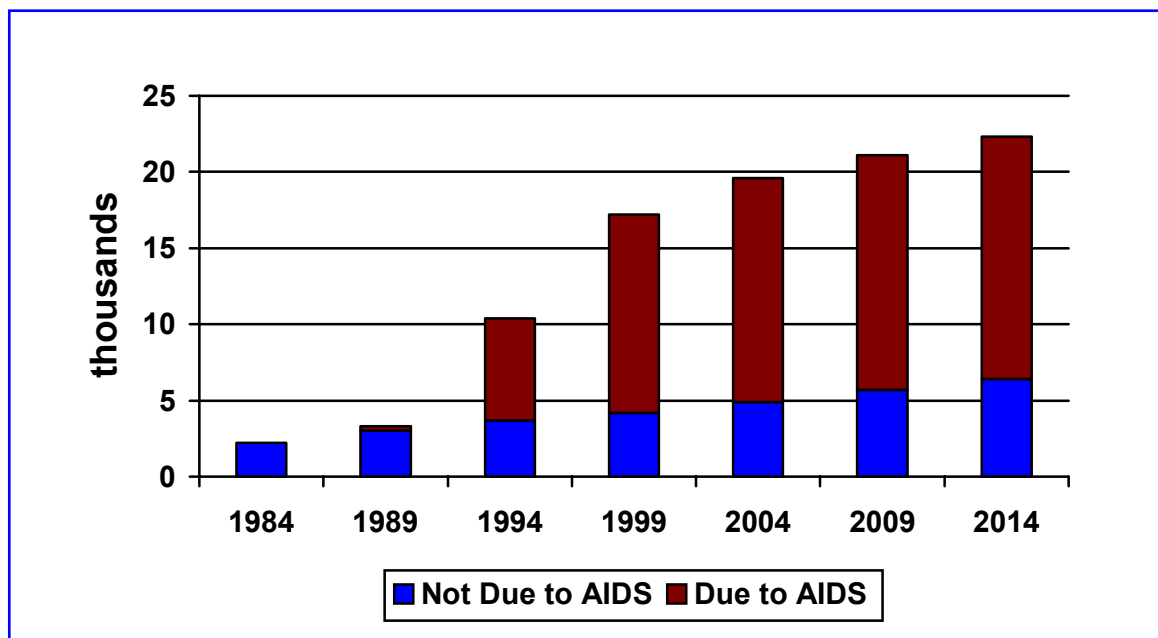


HIV and Tuberculosis

Of particular note, HIV is largely responsible for the rapid rise in tuberculosis (TB) cases in recent years. The arrival of HIV/AIDS has caused a secondary TB epidemic in many African countries. As many as two-thirds of TB patients may be HIV positive. HIV infection weakens the immune system of otherwise healthy adults. Many, perhaps half, of all adults in Ethiopia carry a latent TB infection, which is suppressed by a healthy immune system. When the immune system is weakened by HIV, it can no longer control the TB infection and overt TB disease can develop.¹

The results from the projection model used in this study can be used as an example. In 1989 only 300 of 3300 new TB cases could be attributed to AIDS. By 1999, however, 13,000 of a projected 17,200 new TB cases would be AIDS-related, and by 2009 15,400 of a projected 21,200 new cases would be attributable to the AIDS epidemic. These are almost certainly underestimates, because these new TB cases will transmit the disease to others. Also, the emergence of drug-resistant strains of TB in eastern Africa is contributing to an ever-worsening epidemic.

HIV and Tuberculosis



¹ See, for example, A.D. Harries. "Tuberculosis and Human Immunodeficiency Virus Infection in Developing Countries." *Lancet* (1990), pp. 387 – 390.

The impact of HIV infection on tuberculosis is an especially serious problem because TB is contagious through casual contact. HIV increases the risk of tuberculosis for the entire population. Treatment of TB is very expensive and puts considerable strain on the health budget. AIDS patients who have TB tend to stay in the hospital longer than other AIDS patients. Because of inadequate treatment of some cases of TB among both HIV-infected and uninfected people, drug-resistant strains of TB are appearing, making it even more difficult to prevent transmission and expensive to treat the disease. As these strains appear, and as the TB epidemic expands, the increased risk of drug reaction by TB patients further complicates management of the disease.

Women

AIDS can have a very serious impact on the lives of women when it strikes a family member. In many cases, women do not have a secure occupation that can provide a steady and adequate income. Thus, if the husband dies, the surviving wife and children can be particularly vulnerable. Some women may be exploited or may have to resort to selling sex to provide cash income.

A woman may also have reduced ability to be a provider for the family if she needs to spend a significant portion of her time caring for family members who are sick with AIDS. It may reduce the time she has for productive work as well as affect the amount of time she can spend caring for children. Since other tasks, such as food preparation, must still be done, many women have to work even harder than normal to cope with AIDS in the family.

Research indicates women are two to four times more vulnerable to HIV infection than men during unprotected intercourse because of the larger surface areas exposed to contact. Similarly, women are more vulnerable to other sexually transmitted diseases, the presence of which greatly enhances the risk of HIV infection. STDs that bring on recognizable symptoms in men are often asymptomatic in women and, therefore, remain untreated. Women are also especially vulnerable to AIDS because they may have limited ability to protect themselves from HIV infection. A woman may be at risk of contracting HIV even though she is faithful to her husband, because her husband has outside sexual partners. She may have little or no control over her husband's actions and no ability to protect herself by having her husband use condoms.

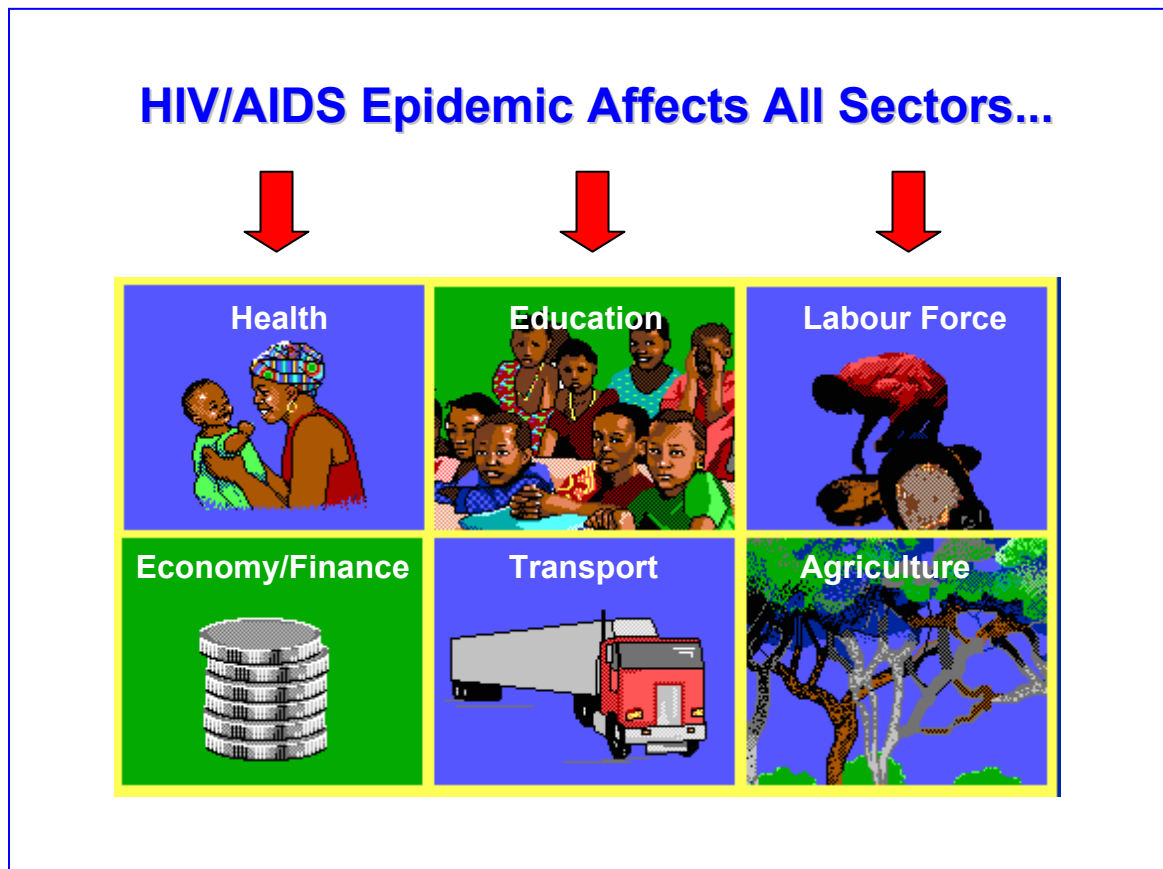
❁ Women can be especially vulnerable to the HIV/AIDS epidemic

- ❖ Economic vulnerability is greater if the husband dies
- ❖ Burden of care in AIDS-affected households falls on women and girl children
- ❖ Subordinate position to men can make it difficult to protect selves against HIV



Sectoral Impacts

What makes AIDS so important to regional development is that it affects the development effort in virtually all sectors. In education, for example, AIDS among teachers results in increasing absenteeism and disruption in the schools. Training costs for teachers rise to replace those lost to the epidemic. Because an AIDS death to an adult results in the loss of household labour and/or income, children are often required to leave school and remain at home or go to work to compensate for losses and to avoid school fees. Girls, in particular, may have to give up their educational opportunities. Orphans often lose the necessary financial, material and emotional support that they need for successful schooling.



IV. INTERVENTIONS TO CONTROL THE SPREAD OF AIDS

Interventions

The National Programme and Policy

The Role of Leaders

Strategic Planning and Priorities in Addis Ababa

INTERVENTIONS TO CONTROL THE SPREAD OF AIDS

HIV prevalence is now so high that the impact of AIDS is going to be very severe in Addis Ababa regardless of what happens in the future. Nonetheless, much can be done to lessen the impact of the disease and eventually bring the epidemic under control.

Interventions

Different interventions can be adopted to address the transmission mechanisms of HIV. Collectively, they can slow the spread of AIDS.

Blood Transfusion. Health officials need to continue efforts to avoid infection through blood transfusion by keeping the blood supply as safe as possible. This means screening blood through laboratory tests and screening potential blood donors through interviews to reject as donors those who have a high probability of infection.

Mother-to-Child Transmission. A mother who is infected with HIV has a 30 to 40 percent chance of transmitting the virus to her newborn child. Mother-to-child transmission is regarded as an important issue nationally and several donors will provide support. Various approaches can be used to reduce the number of children who are infected.

- Providing voluntary counseling and testing and access to family planning services. To reduce mother-to-child transmission, it is important that young women know whether they are infected. If they are HIV-positive, they may wish to use family planning to avoid pregnancies. Voluntary counseling and testing needs to be available for couples where one or both of the partners is infected to help them understand the HIV test and the choices facing them. Voluntary counseling and testing should also be made available to those about to marry.
- Reducing transmission during breastfeeding. Perhaps one-third of mother-to-child transmission occurs through breastfeeding. Curtailing breastfeeding could reduce transmission of HIV but would also eliminate the significant health benefits that children get from breastfeeding. Perhaps in some cases mothers could be counselled on alternative ways to feed the child.
- Using anti-retroviral therapy. Mother-to-child transmission can be reduced through the use of azidovudine (AZT). New research shows that AZT treatment for the mother in the period just before and during childbirth can reduce transmission rates by 50 percent. However, such treatments may cost up to Birr 600 per child. A regional programme would be difficult and expensive to implement and would require testing and counseling for all pregnant women.

Interventions to limit transmission through heterosexual contact

The major mode of transmission is through heterosexual contact and it is especially in this area that interventions have to be intensified in the region. Interventions include promoting reductions in the number of sexual partners; encouraging delays in the onset of sexual activity among adolescents; promoting the correct use and consistent availability of condoms; strengthening programmes for STD control; and encouraging voluntary counseling and testing.

Interventions to limit transmission through heterosexual contact

- ... Reducing the overall number of sexual partners
- ... Delaying the onset of sexual activity among adolescents
- ... Promoting the use and availability of condoms, including female condoms
- ... Controlling other sexually transmitted diseases
- ... Encouraging voluntary counseling and testing

Promoting abstinence before marriage and faithfulness to one partner. One set of interventions focuses on encouraging people to abstain from sex before marriage and remain faithful to a single partner. Abstinence and faithfulness could be promoted through a combination of mass media, counseling and education programmes. Delays in the onset of sexual activity among adolescents can have a significant impact on the spread of HIV. Information, education and communication (IEC) and other programmes that address adolescents and the needs of young people are particularly needed. A reduction in HIV incidence (the annual rate of new infections) among today's young people would not only avoid much suffering but it would also be a critical step in controlling the spread of the virus in the city.

Reducing the overall number of sexual partners, but especially limiting the number of concurrent partners, can also have an effect. Given the extremely high rates of HIV infection among commercial sex workers, a reduction in the number of men who have unprotected sexual contact with prostitutes and bar girls can be important in bringing the epidemic under control. Overall, these strategies could make an important contribution to reducing the spread of HIV, although they would not be, by themselves, a complete solution.

Promoting the use and availability of condoms. A second intervention is to promote condom use through mass media, counseling and education and to increase the availability of condoms through expanded public distribution, social marketing programmes, and programmes in the workplace. Special initiatives to promote condom use among high-risk populations (such as commercial sex workers and long-distance truck drivers) have proven effective in some cases.

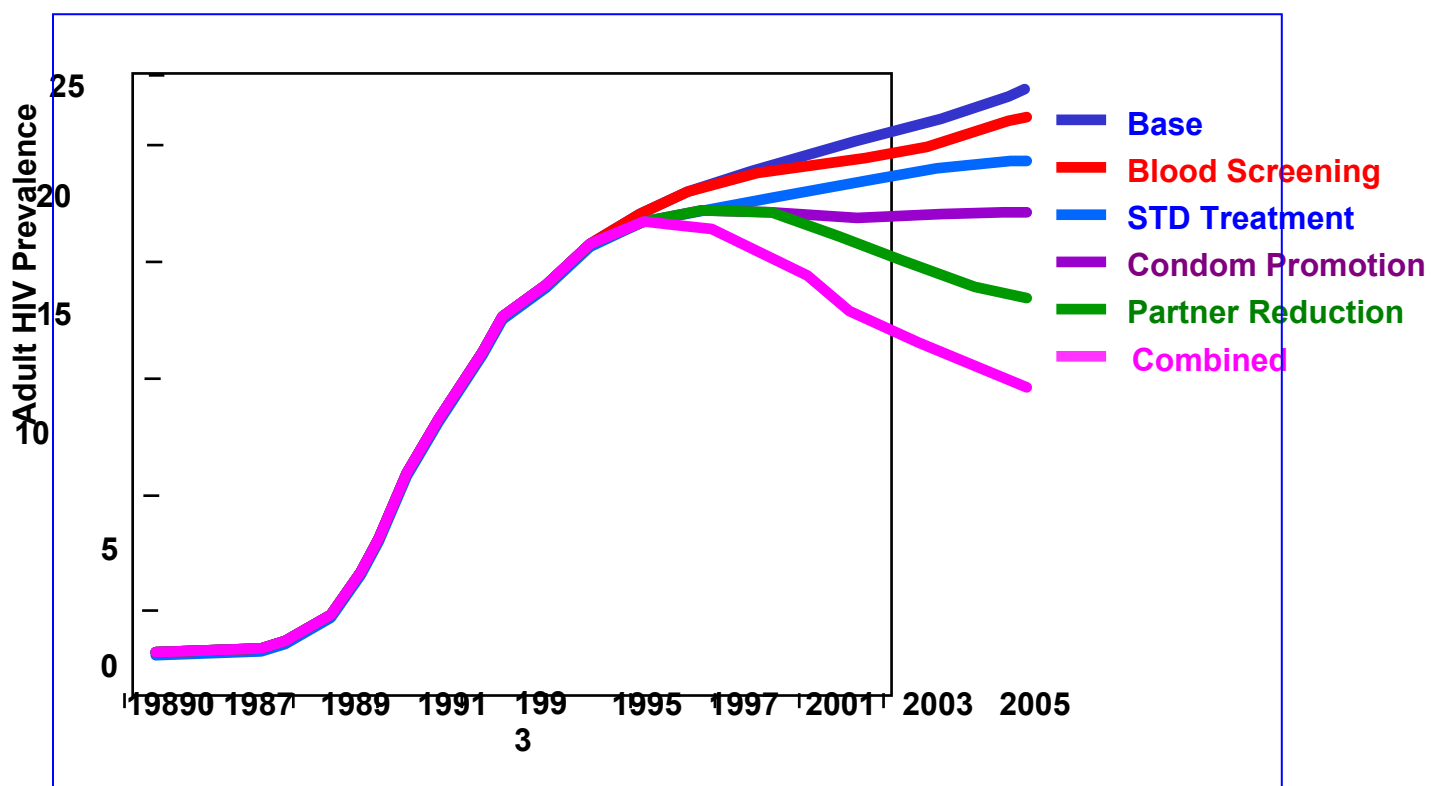
Controlling other sexually transmitted diseases. Another intervention focuses on controlling the spread of sexually transmitted diseases such as syphilis, gonorrhoea and chancroid. A

recent study in Mwanza, Tanzania, for example, found that an improved STD prevention and treatment programme was associated with a reduction of 42 percent in the number of new HIV infections. Services to detect and control STDs can be critically important for managing the HIV/AIDS epidemic.

Combined interventions. Each of the intervention packages described above can make an important contribution to controlling the spread of HIV. Alone, none is likely to solve the problem completely; some people will respond to or be affected by one type of intervention while others will respond to or be affected by another. Computer simulations suggest that a much larger effect can be achieved by implementing all the interventions together in a broad attack on the epidemic.

The following information is not specific to Addis Ababa, but is based on simulation modeling. It shows the expected impact of interventions in an illustrative high prevalence African city, such as Addis. In fact, the prevalence in this simulation in the late 1990s is almost exactly that estimated for Addis. In the absence of interventions – the base projection or the top line on the graph – the HIV adult prevalence rate rises to about 23 percent in 2005. An effective blood screening programme – represented by the second line from the top – reduces prevalence only modestly. However, an effective STD control programme brings expected prevalence down by about 12 percent, and condom promotion and partner reduction interventions reduce HIV prevalence even more. Most importantly, when all four interventions are implemented simultaneously, the projected prevalence is nearly 55 percent less in 2005 than it would have been in the absence of interventions.

Effects of interventions



The fundamental message is a hopeful one. The simulation modeling suggests that with a concerted effort on a number of fronts, a high prevalence country can turn the rising prevalence curve downwards and start to bring the HIV/AIDS epidemic under control.

Overall, there are several important lessons to be learned concerning interventions.

- Pilot tests have shown that interventions can be successful in significantly reducing the spread of HIV.
- Applying interventions on a large scale is costly and success is difficult to measure. Nonetheless, there is now evidence from Uganda and Thailand that significant reductions in HIV incidence and prevalence can occur at a national level. Both countries recognized the seriousness of the epidemic early and implemented strong national programmes to reduce the spread of HIV and to provide support for people with AIDS and their families.
- It is important to intervene as early as possible with a comprehensive mix of proven and effective interventions to reach the largest possible number of people and have the maximum impact.
- The most effective interventions are those that focus on population groups that have the most sexual partners. This is true at all stages of the epidemic.
- Prevention through behavior change, condom promotion and STD treatment is many times more cost-effective than either providing hospital treatment for AIDS patients or trying to prevent the spread of the virus with anti-retroviral therapy.

Signs of Change in Uganda

Recent trends in Uganda are a sign of hope for other countries with high levels of HIV infection. Reports from sentinel surveillance sites and other sources indicate that there may actually be a downward trend in HIV prevalence. Of particular note, the evidence indicates that HIV incidence (annual new infections) and prevalence rates among 15-19 year olds have leveled off in rural areas and are declining in urban areas. Survey results from the early 1990s and mid-1990s suggests that behavior has been changing within this age group, most notably by a later onset of sexual activity among teens and a decline in the proportion of adolescents with multiple sex partners. There has also been greater use of condoms in high-risk sexual encounters by members of this age group.

The reasons for the behavioral changes are unclear. Some data indicate that people are likely to change their behavior if a close friend or relative dies from the disease. This suggests rising mortality as a grim catalyst for changing sexual practices. More positively, President Museveni and other Ugandan leaders have given strong support to AIDS control efforts, and knowledge about AIDS, its risks and consequences, and means of prevention have been widely diffused throughout the country. Whatever the reasons for the changing behavior, it is encouraging to witness, at last, a downward trend in HIV prevalence in an African country seriously affected by the AIDS epidemic.

Treatments. Highly active anti-retroviral therapy (HAART) has received much international publicity in recent years. HAART uses combinations of drugs and can inhibit the spread of HIV within a person's body. For some HIV-infected persons, HAART has been an effective way to prevent the onset of AIDS and prolong life. However, several considerations need to be taken into account when considering HAART in the context of Addis Ababa. Most importantly

- Many HIV-infected persons cannot tolerate the side effects of the drugs and for them the combination therapy treatments are useless. Only about half of prospective users can tolerate the therapy.
- The drugs have to be taken under the strictest regimen, including time of day and with meals or on an empty stomach. Even small variations from the prescribed pattern can render the treatment ineffective. Patients also need constant access to sophisticated medical laboratories to track viral counts in the body.
- Perhaps most importantly, the costs of these treatments are prohibitively high, around \$8,000 per patient per year in an actual developing country setting and even more in the industrialized countries.¹ (By contrast, in Ethiopia, the government spends less than U.S.\$10 per person per year for all health services.)

The new combination drugs are important in that for the first time a medical treatment has proven effective against HIV. This creates hope for the future. But for the moment, even in the most developed countries, this is a highly expensive experiment with an unknown outcome affecting a minority of HIV-infected individuals. In developing countries, the first experimental programmes are just beginning.

It is possible to treat, for a long time, many of the opportunistic infections that develop because of the weakened immune system. These treatments can improve the quality of life and delay the death of a person with AIDS.

¹ World Bank. *Confronting AIDS: Public Priorities in a Global Epidemic*. (New York: Oxford University Press, 1997), pp. 174 – 178.

Vaccines. For many HIV/AIDS researchers and policymakers, the real hope is for a widely available vaccine that can prevent HIV infection in the first place. Research on vaccines continues in many laboratories around the world, with more than two dozen experimental HIV vaccines currently being tested. Most scientists believe that vaccines are not likely to be ready for mass use for at least the next five to 10 years, if then. Even if vaccines do eventually become available, there will be problems in producing large quantities and delivering the vaccine to large numbers of people.

Neither drugs nor vaccines
are likely to be available to
help reduce the
heterosexual spread of HIV
in Addis Ababa in the next
several years.

In brief, it does not appear that either drugs or vaccines will contribute much to reducing the heterosexual spread of HIV in Addis Ababa in the next several years.

The National Programme and Policy

In 1985 the government of Ethiopia, realizing the enormous implications of the epidemic for human suffering, social effects, and costs of health services, established a National Task Force for the prevention and control of HIV infection. In 1987 the National AIDS Control Programme was created at the departmental level within the Ministry of Health as a responsible body for directing and coordinating the implementation of the AIDS Control Programme.

Staff from the Ministry of Health assisted by experts from the Global Programme on AIDS of the World Health Organisation (GPA/WHO), led the development of short and medium term plans in March and May of 1987 respectively. The First Medium Term Plan (MTP-I) focused on public awareness, establishment of laboratory services, surveillance of HIV and training of health workers.

The Second Medium Term Plan (1992-1996), MTP-II, was designed in December 1991, based on experience gained from the implementation of MTP-I. The major emphasis in MTP-II was on interventions to stop the spread of HIV. It adopts a multi-sectoral approach to mobilize a widespread effort against AIDS through decentralization of AIDS/STD prevention and control activities.

In the past several years the HIV/AIDS Unit in the Ministry of Health and UNAIDS have collaborated in strategic planning, and completed a situation analysis for the central and regional levels. Each of the regions, including Addis Ababa, has prepared a strategic plan. In the near future, MOH will prepare a national level strategic plan that will consolidate the regional plans.

In addition to the activities of the Ministry of Health, other ministries are also contributing to the AIDS Control Programme, primarily through education and dissemination activities. Also, many non governmental organizations (NGOs), churches and other organizations are providing programmes for AIDS prevention and care. These efforts include condom promotion and distribution, counseling, peer education and care of AIDS patients.

To advance anti-HIV/AIDS efforts even further, the Government of the Federal Democratic Republic of Ethiopia recently adopted a Policy on HIV/AIDS. The policy is designed to guide the implementation of successful programmes to prevent the spread of HIV and AIDS, to care for those with AIDS and to reduce the adverse socio-economic consequences of the epidemic. It recognizes the need for a broad, multi-sectoral response to the HIV/AIDS epidemic and encourages participation by government sectors, NGOs, the private sector, mass organizations, religious groups and communities.

The general strategies designed to address the epidemic include plans to

- develop intensive, extensive and sustainable IEC activities that utilize all possible media, materials and methods;
- promote fidelity and monogamous marriage relationships, but make condoms available at all possible outlets at affordable prices for those failing to comply with cultural norms;
- intensify efforts to prevent and control the spread of other sexually transmitted diseases;
- upgrade capabilities to provide voluntary HIV testing, screening and counseling;

- ensure safe medical practices, including universal sterilization and disinfection precautions, to safeguard both patients and health care providers;
- adopt appropriate measures to stop HIV transmission through harmful traditional practices and through the shared use of contaminated needles among illegal drug users;
- upgrade HIV/AIDS surveillance and reporting to ensure adequate understanding of the epidemic and the effect of interventions, and counsel and encourage people living with HIV/AIDS (PLHA) to notify others of their status;
- provide adequate medical care and psychosocial support to people living with HIV/AIDS and affected family members, including orphans;
- give necessary support and encouragement to HIV/AIDS research activities, including operational research to help build an effective response;
- protect the human rights of people living with HIV/AIDS;
- prepare, under MOH leadership, a country wide prevention and control program;
- facilitate the mobilization of resources from international and donor communities to respond effectively to the challenges of the epidemic.

The policy recognizes that the epidemic will result in a catastrophic impact across generations unless the spread of HIV is checked. The adoption of the national Policy on HIV/AIDS is in itself an important step forward.

National AIDS Policy

Priority Prevention and Control Measures

- ➡ Promote IEC as the most effective intervention to date;
- ➡ encourage faithful sexual relationships;
- ➡ promote the use of condoms in high risk situations;
- ➡ minimize other unsafe practices such as risky traditional procedures;
- ➡ ensure safe medical practices to protect patients and providers;
- ➡ provide diagnosis and treatment for sexually transmitted diseases;
- ➡ protect the human rights of people with HIV/AIDS.



The Role of Leaders

Some political, health and other leaders will be directly involved in HIV/AIDS programme implementation. But political, governmental, non-governmental, religious, business, education and other regional leaders who are not directly involved in the implementation of HIV/AIDS prevention programmes can contribute as well. If the leaders of Addis Ababa all do their share, this epidemic can be turned around. Much of this briefing book has discussed programmatic intervention and prevention strategies. This section will look at and illustrate what individual leaders can do now.

What, for example, could a political leader do now to help control the spread of HIV in Addis Ababa?

Share or “diffuse” knowledge about HIV/AIDS among constituents, especially information about transmission, fatal consequences and ways to prevent infection

Engage in policy dialogue to ensure that the epidemic remains high on the regional agenda

Participate in regional strategic planning

Support the HIV/AIDS programmes of NGOs and sectoral ministries

Use influence of position to oppose discrimination against HIV-infected persons

In his/her political capacity, support appropriate intervention measures.

What can these leaders do to help stem the spread of HIV in Addis Ababa? Some illustrations follow but the list could be many times longer depending on the role of the leader or the organization. Evidence from Uganda and elsewhere suggests that the spread, or “diffusion,” throughout the population of information about the epidemic – its extent, the nature of the disease, how HIV is spread, the fatal consequences and how individuals can protect themselves and their loved ones – is key to achieving widespread changes in high-risk behavior. Regional leaders have numerous opportunities to share information, such as found in this briefing book, with their constituencies. This is a practical and critically important process to which all well-informed leaders can immediately and realistically contribute.

Political leaders can also contribute to a policy dialogue on the HIV/AIDS epidemic that keeps the issue high on the regional agenda. One of the factors that seems to be helping turn the tide in Uganda is that President Museveni and other leaders have spoken out early and often about the HIV/AIDS epidemic and given open and strong support to intervention programmes. This gives both visibility and credibility to HIV/AIDS intervention programmes and helps develop a consensus about the most effective and acceptable prevention and mitigation strategies. HIV/AIDS statements can be included in speeches at all realistic opportunities. Regional leaders

can review the HIV/AIDS national and regional strategic plans and offer suggestions on how it can be used with their constituencies.

One of the most common problems in addressing the HIV/AIDS epidemic is that persons have often avoided learning about or admitting to being infected with HIV because of the stigma attached to the disease and because of fear of discrimination. However, avoidance limits diffusion of knowledge about HIV in the general population and it increases the risk of transmission to loved ones and others. Political and other leaders can help by publicly acknowledging the need to care for and support persons living with AIDS and HIV infection and working against discrimination.

AIDS is much more than just a health problem; rather, it affects all areas of society and all components of the development effort. It is therefore important that all government sectors, NGOs, private sector organizations, religious institutions, unions, professional societies and others make their contributions.

What, for example, could a religious/NGO/community leader do now to help control the spread of HIV in Addis Ababa?

Integrate messages and information about prevention, care and support into ongoing activities, such as youth and adult education

Identify and serve as an advocate for vulnerable groups, for example young women and orphaned children subject to sexual exploitation or abuse

Develop IEC messages and programmes that stress the importance of family and moral values in stopping the spread of HIV, for example remaining faithful to one partner or encouraging delays in the onset of adolescent sexual activity

Participate in care and support programmes for HIV-infected people

Participate in strategic planning activities at regional level

In their administrative, legislative and leadership roles, leaders in different areas can take measures to support appropriate intervention measures.

Strategic Planning and Priorities in Addis Ababa

To address such a serious epidemic, Addis Ababa needs to mobilise all possible resources. To help do so, strategic planning activities are designed to prepare “road maps” on how the country can address the HIV/AIDS epidemic. Strategic planning asks such questions as:

- What are the fundamental strategies to be adopted to bring the epidemic under control?
- What interventions need to be rapidly scaled-up in coverage or targeting?
- What organizations should be involved and what are the practical next steps for each?
- What more should the different sectors or organizations be doing?
- Are there additional policies that need to be adopted?
- Are more resources needed and who should provide them?
- How will expected results be measured and how will the effectiveness of interventions be evaluated?

Strategic Planning to Address HIV/AIDS

- **Fundamental strategies? Interventions?**
- **What organisations?**
- **Practicable next steps for each?**
- **Other sectoral programmes?**
- **Additional policies? Evaluation?**
- **More resources? From where?**

The Addis Ababa City Administration Health Bureau has engaged in its own strategic planning for the control of HIV/AIDS/STDs. Overall, HIV/AIDS prevention and control activities are organized by the Addis Ababa City Administration Anti-HIV/AIDS Networking Group (AAAANG). The AAAANG is composed of both government and non governmental organizations. Today, the network includes 40 non governmental, six governmental and a few private health and related organizations. In addition, six zonal networking groups facilitate communications and implement activities. The fundamental goal of the group is to reduce the prevalence and incidence of HIV/AIDS and other sexually transmitted diseases to levels where they are no longer regarded as public health problems in Addis Ababa. Strategies include (1) behavioral change; (2) condom promotion and distribution; (3) STD case management; and (4) provision of care and support to both the infected and those affected by the epidemic.

Efforts to date have been noteworthy, yet the high level of HIV prevalence in the city means that even more needs to be done. At the same time, resources are limited and it is important that efforts be aimed at those activities that can have the greatest impact. It is important to emphasise what can be done and what is realistic in the context of Region 14. For example, however effective anti-retrovirals might be in some settings in industrialized countries, they are simply unaffordable for extensive use in Addis Ababa. In contrast, condoms can be made widely available at a relatively low cost. The strategic response to the HIV/AIDS epidemic in Addis Ababa needs to be a collective, multi-sectoral effort that evolves over time, and it is not the purpose of this briefing book to offer definitive answers. Nonetheless, some priority areas that are realistic can be suggested.

- Review the status of HIV/AIDS efforts throughout the region and reestablish priority areas for intervention.
- Foster a multi-sectoral response that engages all government ministries, the private sector, the churches and NGOs.
- Expand voluntary counseling and testing services, including programmes for pregnant women and those about to be married.
- Expand the availability of inexpensive condoms throughout the city, especially in settings where people are known to engage in high-risk sexual activity.
- Increase the availability of diagnostic and treatment services for STD patients.
- Significantly increase the availability of IEC programmes that inform people about the transmission of HIV, its fatal consequences and ways to prevent infection.
- Develop further IEC materials that encourage people to maintain faithful sexual relationships with one partner and to avoid harmful traditional procedures.
- Develop further IEC materials especially targeted at adolescents to lower high rates of transmission within that age group.
- Engage political and other leaders in policy dialogue on the HIV/AIDS epidemic, so they can play their role in the diffusion of information, the development of a multi-sectoral programmatic response and the mobilization of resources.
- Track resources available for HIV/AIDS activities in the region and advocate for increased commitments.

HIV/AIDS is an emergency epidemic that is far more threatening to the lives of the people of Addis Ababa than war or other diseases and it deserves an appropriate response. The impact of the HIV/AIDS epidemic on the collective health and the social and economic well-being of Addis Ababa is potentially stunning. With an HIV adult prevalence rate around 17 percent, there is no way for the country and its institutions, communities and households to avoid the tragic and grim consequences of the epidemic.

Yet 83 percent of the adult population remains uninfected, and each uninfected woman and man can take active measures against transmission of the virus. Reports from Uganda indicate that there can be widespread changes in behavior and that HIV prevalence and HIV incidence can be reduced. The government, NGOs, the private sector, communities, churches and others all have a critical role to play in seeing that this happens and that people living with HIV and AIDS are treated with compassion, support and care.

V. TECHNICAL NOTE

Much of the information in this book is based on previous national analyses prepared by the Ministry of Health, AIDS Control Unit in 1996 and 1998. Addis Ababa is also fortunate to have considerably more data on HIV/AIDS than other regions of the country. This is largely due to the sentinel surveillance sites and research programmes operated by the Ethiopian Netherlands AIDS Research Project, part of the Ethiopian Health and Nutrition Research Institute. The Central Statistical Authority also shared its draft population projections for Addis Ababa.

Unless otherwise indicated, the projections in this book are the output of an application of a microcomputer projection programme for HIV/AIDS known as the AIDS Impact Model or AIM. AIM, in turn, is one component of the SPECTRUM system of policy models, a series of reproductive health policy models developed by The Futures Group International in collaboration with Research Triangle Institute and The Centre for Development and Population Activities.

The simulation model results given on page 46 for alternative interventions come from Bernstein et al as found in Section VII, Selected Sources. The projections incorporate the following assumptions for the different interventions.

Intervention

Blood screening:	100 percent blood screening
Condom promotion:	Effective condom use in 70 percent of commercial sex contacts and 13 percent of casual contacts
STD control:	Effective STD treatment for 40 percent of STD episodes among commercial sex workers and men; 10 percent effective treatment among other women
Partner reduction:	50 percent reduction in proportion of men engaging in commercial sex; 25 percent reduction in proportion of men engaging in sex with short-term casual partners
Combined:	All four interventions implemented simultaneously

Further inquiries on the technical content of this document can be submitted to the Addis Ababa City Administration Health Bureau. The address is on the last page.

VI. Estimating Adult HIV Prevalence in Addis Ababa

In October 1998, a group of 20 persons representing Ethiopian institutions and international organizations met to review the briefing book in draft form and to confirm a working estimate of adult HIV prevalence in Addis Ababa. In this analysis, adult HIV prevalence is estimated at 17 percent for 1997, a number based largely on findings from the sentinel surveillance system. Since this estimate is so important to understanding the nature and course of the epidemic in the city, and because partial data is subject to interpretation, it is important to know why the group decided to use the sentinel surveillance data as the basis for a working estimate.

There are important discrepancies among the available estimates of adult HIV prevalence in Addis Ababa. The main sources of data for the capital city of Ethiopia are a large population-based study of HIV prevalence in 1994, data from blood donors from 1992 to 1997, data from small population studies in 1996, and data from antenatal care attenders (ANC) in 1996 and 1997.

The Ethiopian Health and Nutrition Research Institute (EHNRI) in collaboration with the Community Health Department of the Faculty of Medicine, Addis Ababa University, and the University of Warwick, United Kingdom, carried out the 1994 population-based study. Blood samples were actually collected initially for purposes other than HIV, but they were later analysed for the presence of HIV by the Ethiopian-Netherlands AIDS Research Project (ENARP), based at EHNRI. The ENARP analysis showed that HIV prevalence among 15 to 49 year olds was 6.0 percent for males and 6.9 percent for females (though because of sampling error estimated prevalence could have been as high as 7.4 percent for men and 8.5 percent for women). Because HIV incidence (the annual rate of new infections) is high, a prevalence rate of 7 to 8 percent for women aged 15 – 49 in 1994 would be consistent with a prevalence rate in the low teens in 1997.

The strength of the population-based study was its complete geographical coverage of the city and its large sample size. The main limitation was the low participation in adult age groups: 37 percent and 60 percent for males and females respectively. It is not known whether non-participants refused to give blood samples, or were out of the house at the time of the visits by the study team. Based on results of other studies, however, HIV prevalence would probably be higher among those refusing to give blood samples, or among those absent from homes at the time of the survey. Also, a very important finding of the study was that HIV prevalence was approximately the same for men and women. This means that prevalence data for women can be generalized to men.

Blood donors are another source of information about HIV prevalence in Addis Ababa. Eighty percent of blood donors in Addis Ababa are “replacement donors”. They are asked to give blood to replace blood given to one of their family members during hospitalization. The remaining blood donations come from donors to the Ethiopian Red Cross Society, where a small meal is provided after donation.

Test results from blood donors consistently show HIV prevalence rates between 7 and 9 percent over the past seven years. However, this information needs to be interpreted cautiously. There are two fundamental limitations. First, data do not exist regarding the residence of blood donors. It is conceivable that a substantial proportion of hospitalized patients in Addis Ababa come from

rural areas. If a blood transfusion were required, a relative, probably from the same locale, would give either the blood for the transfusion or replacement blood. Since HIV infection rates are much lower in rural areas, the inclusion of blood donors from the countryside would contribute to an underestimation of the situation in Addis itself.

The other limitation is the selection criteria used for regular blood donors. The Ethiopian Red Cross Society administers a brief questionnaire to potential blood donors to screen out individuals with high-risk behaviors for HIV. Although it is not known to what extent the administration of this questionnaire is enforced, any screening of persons engaged in high-risk behavior would obviously lead to an underestimation of HIV prevalence among the adult residents of Addis Ababa.

Small studies carried out in 1996 among different populations of Addis Ababa showed adult HIV prevalence ranging from 10 to 22 percent. An ENARP/EHNRI study done in 1996 in the southwestern part of the city (Higher 23) indicated adult HIV prevalence of 10 percent. Interestingly, a study of ANC patients at Higher 23 in the same year found an identical HIV prevalence estimate of 10 percent. A 1996 study of factory workers 20 kilometres south of Addis Ababa showed an HIV prevalence rate of 12 percent, while another inquiry in the market area of Addis Ababa indicated an adult HIV prevalence rate of 22 percent.

The most recent available data come from the sentinel surveillance of pregnant women in Addis Ababa. The sentinel surveillance system, collaboratively organized by the Addis Ababa City Administration Health Bureau and ENARP/EHNRI, has been operating in antenatal care centers of the city since 1996. It consists of four ANC centres. The four centers were selected using the results of the 1994 population-based survey, with one center per area of low, low-medium, medium-high, and high HIV prevalence.

The HIV prevalence observed among ANC patients was 17.5 percent in 1996 and in 1997. Although these figures look somewhat higher than those obtained from the 1994 population-based study and from blood donors data, the review group decided to use them as the basis for the 1997 estimate of HIV prevalence among adults of Addis Ababa for several reasons:

- the blood donor data have serious limitations as a source for estimating prevalence in the general adult population of the city;
- the population-based data from 1994, while more perplexing, may also have some limitations due to the large non-participation rate;
- when the high incidence of new infections between 1994 and 1997 is taken into account, the differences between the population-based and sentinel surveillance results are lessened;
- the ANC results are reasonably consistent with the 1996 community-based studies;
- experience from other countries (Tanzania and Zambia, for example) shows that ANC patients give a reasonable estimate of adult HIV prevalence when compared to population-based studies; if any difference is observed, data based on ANC attenders consistently provide underestimates rather than overestimates of adult HIV prevalence;
- the ANC data is the most recent data available;
- by some reports, as high a proportion as 80 percent of pregnant women use ANC services, making this group reasonably representative of the overall population;
- since the male to female prevalence ratio was close to one in 1994, the ANC data can be used to estimate prevalence levels among men as well;
- monitoring of HIV prevalence in these four centers will continue in coming years, allowing for comparisons over time and adjustments of estimates if necessary.

The data are not perfect and it would be revealing to conduct a new population-based survey in Addis Ababa designed specifically to look at HIV infection.

Some adjustments to the ANC data may be necessary to arrive at an estimate of HIV adult prevalence. Women who become pregnant tend to be young and sexually active, thereby placing them at greater risk of HIV infection than other segments of the adult population. ANC rates, therefore, might overstate prevalence rates in the general population. On the other hand, there is considerable evidence that HIV significantly depresses the fertility of infected women, which means that HIV-infected women are underrepresented among ANC patients. This means that observed rates among ANC women have to be adjusted upward. The ratio of male to female infections also has to be considered.

In Addis Ababa, when all factors are taken into account, the observed rates of HIV prevalence at ANC clinics and estimated adult prevalence are close to one another. In its final analysis, the review group decided that 17 percent adult HIV prevalence would be the best working estimate of actual levels of infection in the city.

VII. Selected Sources

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